Massachusetts Department of Public Health
Bureau of Infectious Disease and Laboratory Sciences

2016 Integrated HIV/AIDS, STD, and Viral Hepatitis Surveillance Report

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Massachusetts Department of Public Health
Bureau of Infectious Disease and Laboratory Sciences
305 South Street
Jamaica Plain, MA 02130

To speak to the on-call epidemiologist

Tel: (617) 983-6800

Questions about infectious disease reporting

Tel: (617) 983-6813

Questions about this report

Tel: (617) 983-6560

Requests for additional data

http://www.mass.gov/eohhs/gov/departments/dph/programs/id/isis/surveillance-data-request.htm

2016 Integrated HIV/AIDS, STD, and Viral Hepatitis Surveillance Report
Massachusetts Department of Public Health
Bureau of Infectious Disease and Laboratory Sciences

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Executive Summary 2016

The 2016 Integrated HIV/AIDS, STD, and Viral Hepatitis Surveillance Report provides data on infections reported to the Massachusetts Department of Public Health (MDPH) Bureau of Infectious Disease and Laboratory Sciences by healthcare providers and laboratories per regulation (105 CMR 300.000). This report focuses on a subset of these diseases:

- Chlamydia
- Gonorrhea
- Hepatitis B
- Hepatitis C
- HIV/AIDS
- Syphilis

The intended audience for this annual surveillance report includes the clinicians and laboratory professionals who report cases, as well as the community organizations, local public health departments, advocates, policymakers, and researchers who are interested in the health of Massachusetts residents.

Key highlights in 2016

Chlamydia, gonorrhea, and syphilis:

- Chlamydia continues to be the most commonly reported infectious disease, with approximately 24,000 to 26,000 cases reported annually since 2012.
- Gonorrhea is now clearly reported disproportionately in men, among whom rates have more than doubled over the last decade.
- The incidence rate of infectious syphilis (primary, secondary, and early latent syphilis) has increased 30%, to a ten-year high of 15.2 per 100,000 population in 2016. Syphilis continues to disproportionally affect men, reflecting an ongoing epidemic among men who have sex with men.
- Young adults (ages 15–29 years) have the highest rates of chlamydia, gonorrhea, and syphilis, compared to other age groups.

HIV/AIDS:[1]

- The number of HIV infection diagnoses decreased by 25% from 2006 (N=834) to 2015 (N=627). Due to ongoing transmission as well as improved survival and lower rates of death, the number of persons known to be living with HIV/AIDS in Massachusetts increased 25% between 2006 (N=16,218) and 2015 (N=20,253).
- Black (non-Hispanic) and Hispanic/Latino residents had significantly higher rates of HIV infection diagnoses compared to white (non-Hispanic) residents. This was most notable among women, as 76% of women newly diagnosed between 2013 and 2015 were black (non-Hispanic) or Hispanic/Latina.

[1] Due to the extensive follow up required to verify date of diagnosis, all HIV/AIDS data reflect HIV infection diagnosed through 2015.

- Male-to-male sex remained the single most frequently reported exposure mode among newly diagnosed cases of HIV infection, and represented 60% of newly diagnosed cases among men during 2013 to 2015.

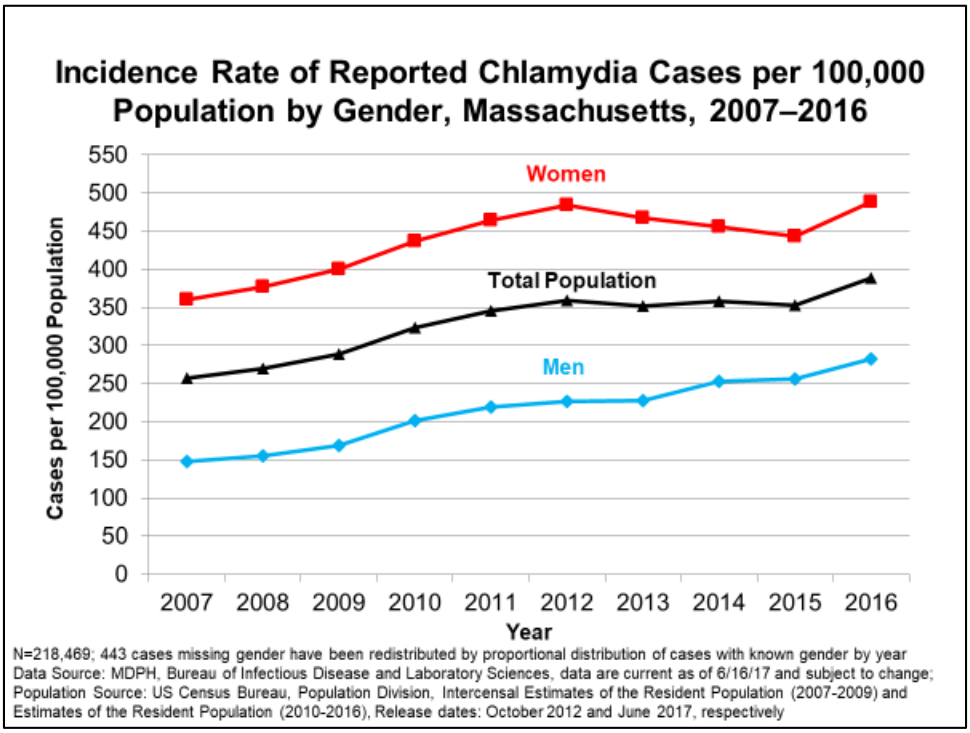
Hepatitis B and C:

- Reported confirmed cases of chronic hepatitis B continued to decline, due in large part to near-universal infant immunization in the United States.
- An average of over 8,500 confirmed and probable hepatitis C cases were reported in each of the past nine years (2007 to 2015).
- There continued to be an increase of hepatitis C cases reported among adolescents (age 15–24 years) and young adults (age 25–29 years), reflecting ongoing transmission among young people injecting opioids.

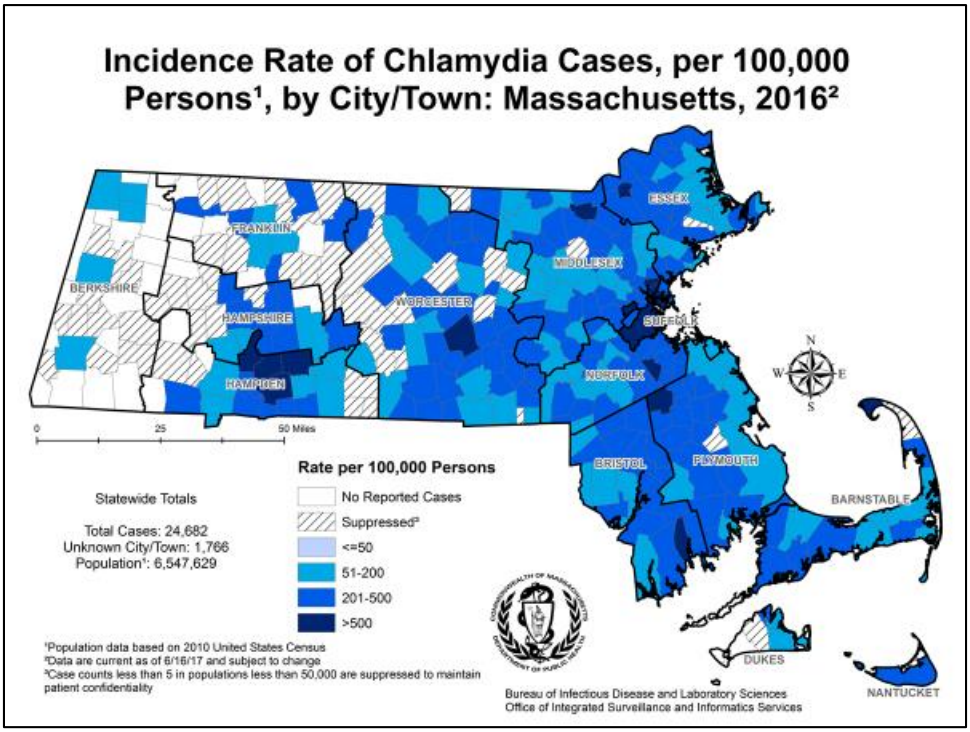
This report was developed by the following MDPH staff:

Katherine Hsu, MD, MPH, Medical Director, Division of STD Prevention and HIV/AIDS Surveillance
Betsey John, MPH, Director, HIV/AIDS and STD Surveillance
Shauna Onofrey, MPH, Viral Hepatitis Surveillance Coordinator, Division of Epidemiology and Immunization
Kathleen Roosevelt, MPH, Director, Division of STD Prevention
Patricia Kludt, MPH, Director, Epidemiology Program
Gillian Haney, MPH, Director, Office of Integrated Surveillance and Informatics Services
H. Dawn Fukuda, ScM, Director, Office of HIV/AIDS
Larry Madoff, MD, Director, Division of Epidemiology and Immunization
Alfred DeMaria, Jr., MD, Medical Director and State Epidemiologist, Bureau of Infectious Disease and Laboratory Sciences
Kevin Cranston, MDiv, Director, Bureau of Infectious Disease and Laboratory Sciences

CHLAMYDIA



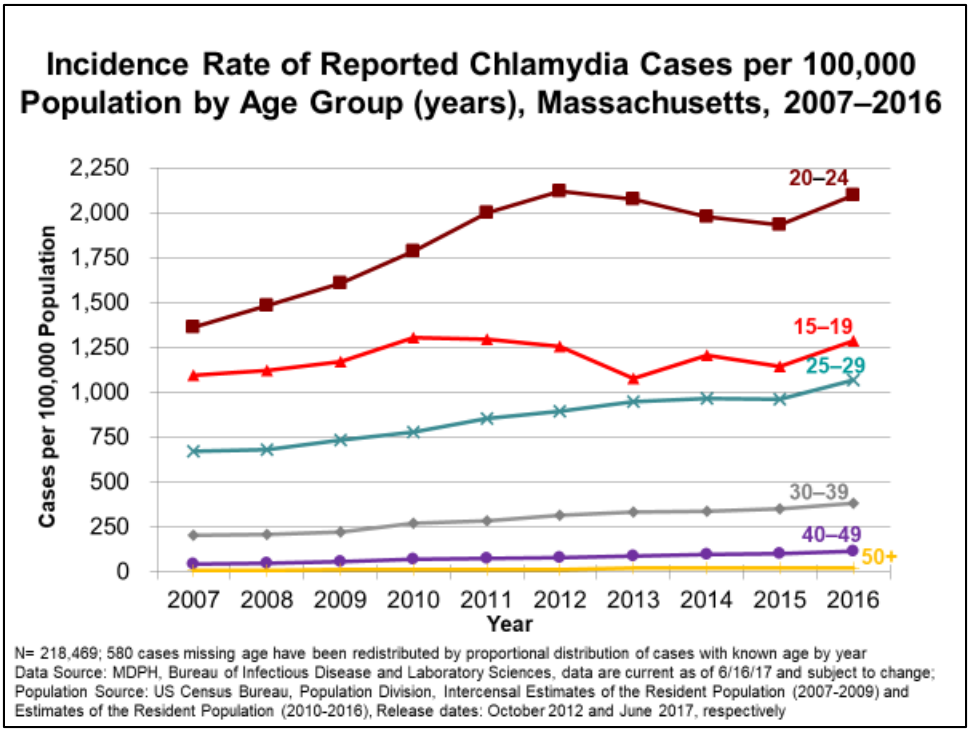
- 26,448 cases of chlamydia were reported in Massachusetts in 2016 - making it the most frequently reported infection in the Commonwealth.
- The total number of reported chlamydia cases increased by 60% from 16,569 in 2007 to 26,448 in 2016.
- In 2016, the chlamydia incidence rate among women (488.1 per 100,000) was nearly twice as high as the rate among men (282.4 per 100,000).



- The five jurisdictions with the highest chlamydia incidence rates were Provincetown, (1,631.5 per 100,000), Lawrence (1,200.6 per 100,000), Brockton (922.1 per 100,000), Boston (860.3 per 100,000), and Springfield (827.1 per 100,000).
- In 2016, the statewide chlamydia incidence rate of 388.3 per 100,000 population was lower than the national rate of 497.3 per 100,000.[2]
- Massachusetts ranked tenth lowest in chlamydia incidence among the 50 states. [2]

[2] Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2016. Atlanta: U.S. Department of Health and Human Services; 2017

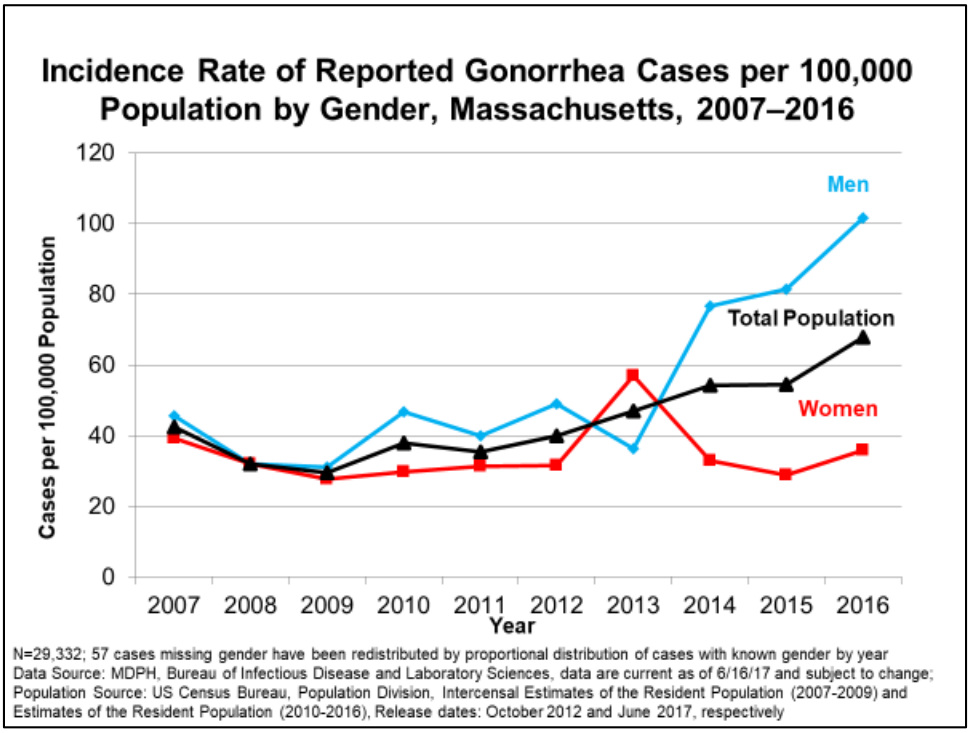
CHLAMYDIA



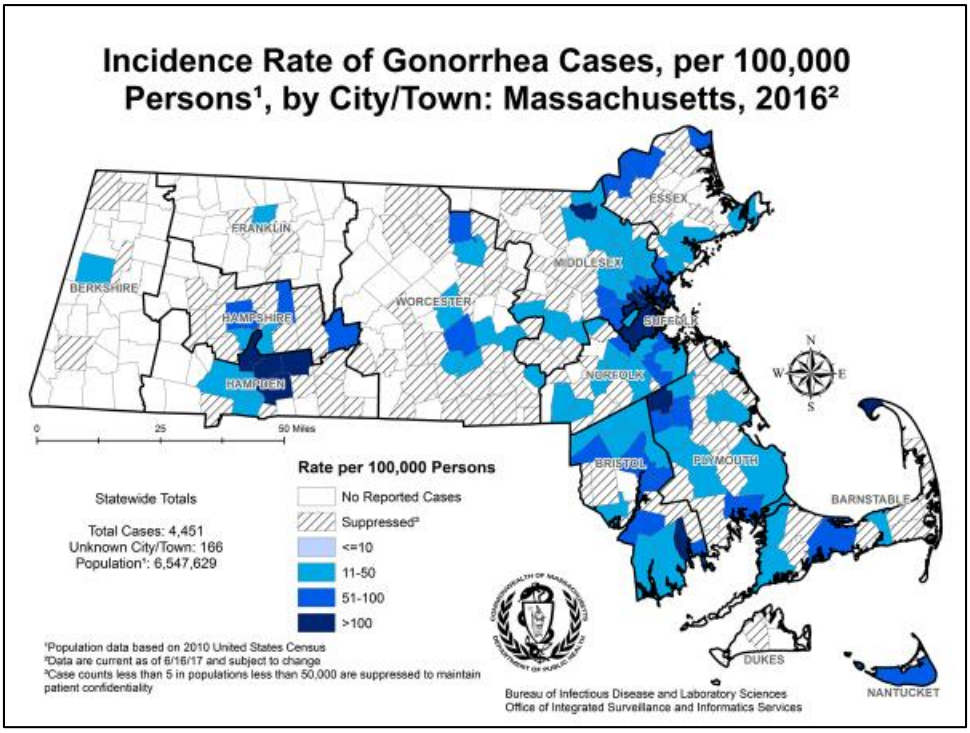
- The chlamydia incidence rate remained highest among adolescents and young adults.
- In 2016, the chlamydia incidence rate among young adults (ages 20–24) was over five times higher than the statewide rate among all ages (2,098.8 compared to 388.3 per 100,000).
- The rate among adolescents (ages 15–19) was over three times higher than the statewide rate among all ages (1,286.7 compared to 388.3 per 100,000).

Additional information about chlamydia and other STDs is available online at www.mass.gov/dph/cdc/std.

GONORRHEA



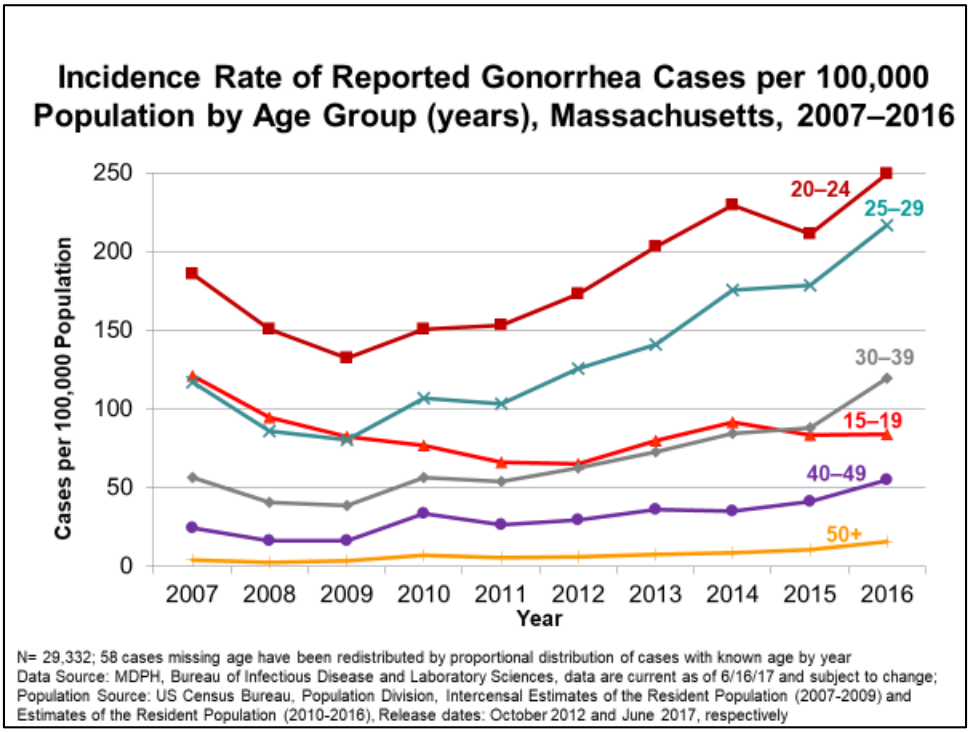
- 4,617 gonorrhea cases were reported in 2016.
- The total number of reported gonorrhea cases increased by 69% from 2,724 in 2007 to 4,617 in 201.
- Between 2007 and 2016, the gonorrhea incidence rate reported among men more than doubled (from 45.7 per 100,000 to 101.5 per 100,000). The gonorrhea incidence rate among men is now nearly three times higher than the rate among women (36.0 per 100,000).



- Gonorrhea cases were clustered in urban areas in 2016.
- The five cities with the highest rates were Provincetown (1,257.7 per 100,000), Brockton (235.6 per 100,000), Boston (212.4 per 100,000), Springfield (173.8 per 100,000), and New Bedford (155.7 per 100,000).
- The statewide incidence rate of 67.8 per 100,000 was less than half the national rate of 145.8 per 100,000.[2]
- Massachusetts ranked ninth lowest in gonorrhea incidence rate among the 50 states.[2]

[2] Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2016. Atlanta: U.S. Department of Health and Human Services; 2017

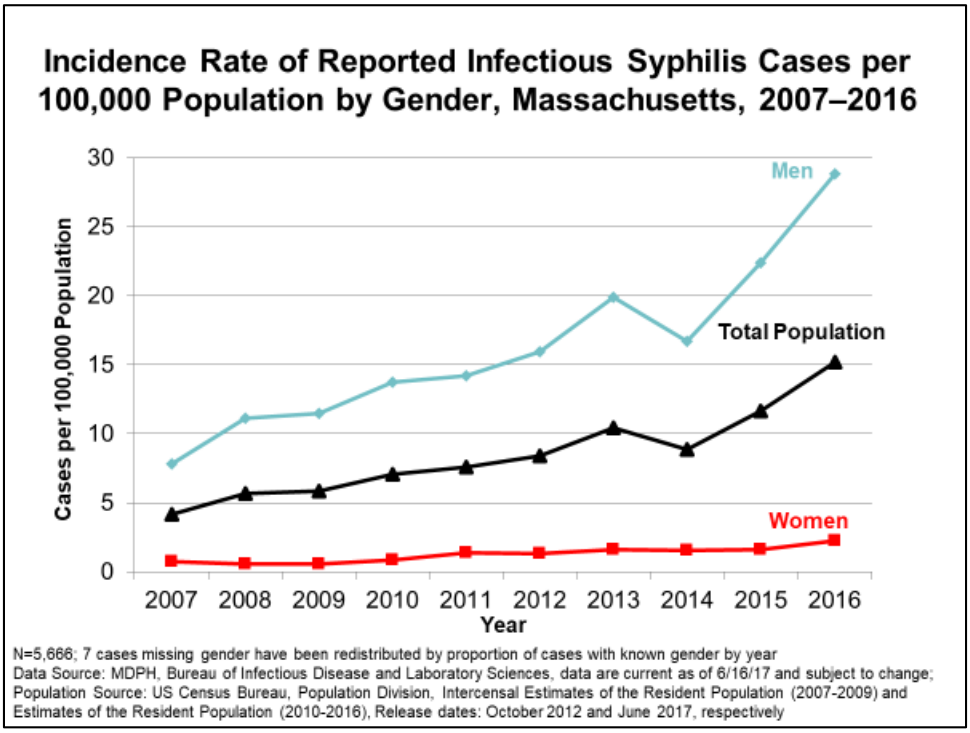
GONORRHEA



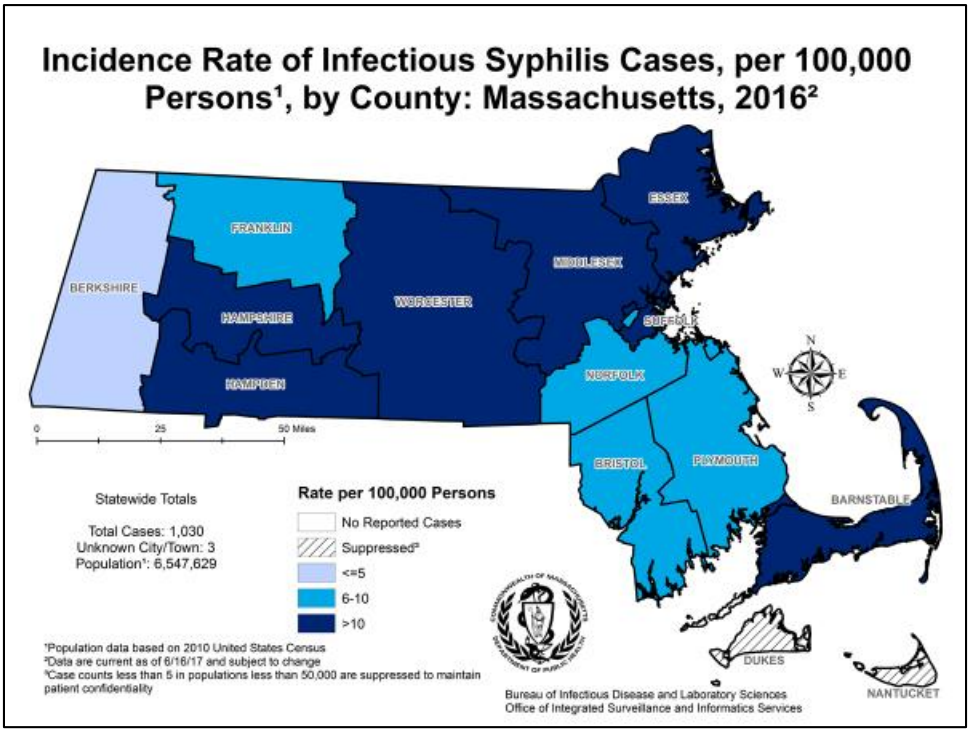
- The gonorrhea incidence rate remained highest among young adults, and has increased since 2011 in the 20–39 year old population.
- In 2016, the gonorrhea incidence rate among young adults (ages 20–24) was nearly four times the statewide incidence rate among all ages (249.3 compared to 67.8 per 100,000).
- The rate among young adults (ages 25–29) was three times higher than the statewide rate among all ages (216.9 compared to 67.8 per 100,000).

Additional information about gonorrhea and other STDs is available online at www.mass.gov/dph/cdc/std.

SYPHILIS



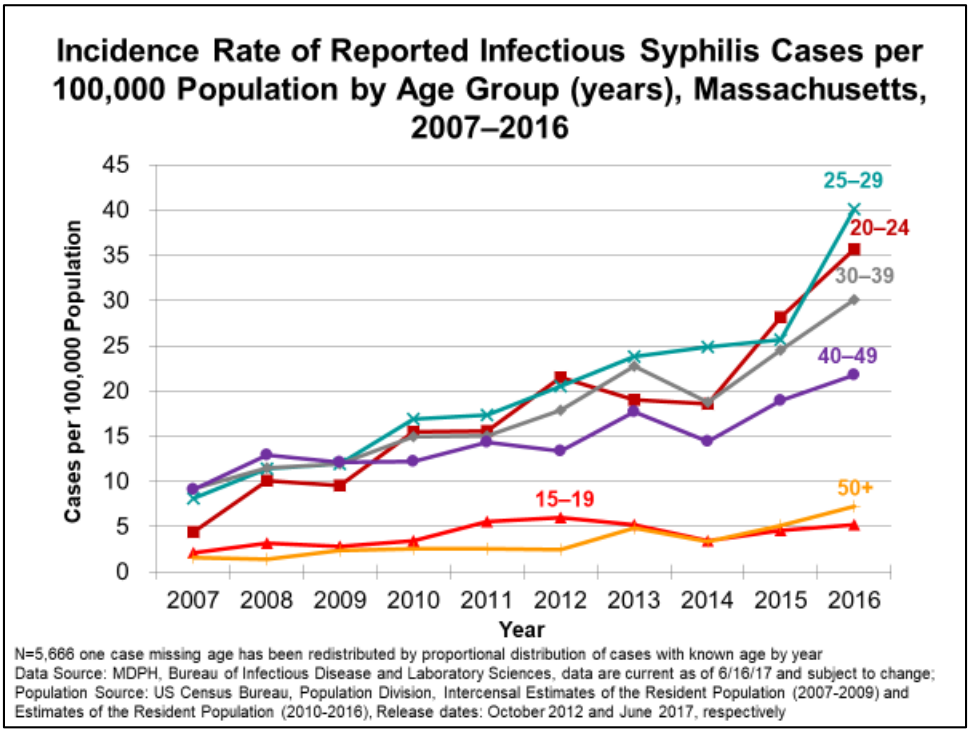
- 1,033 infectious syphilis (primary, secondary, and early latent) cases were reported in 2016.
- The total number of reported infectious syphilis cases in 2016 (N=1,033) was nearly four times the number reported in 2007 (N=268).
- Between 2007 and 2016, the syphilis incidence rate reported among men more than tripled (from 7.8 to 28.9 per 100,000). The syphilis incidence rate among men is now nearly 13 times higher than the rate among women (2.3 per 100,000).



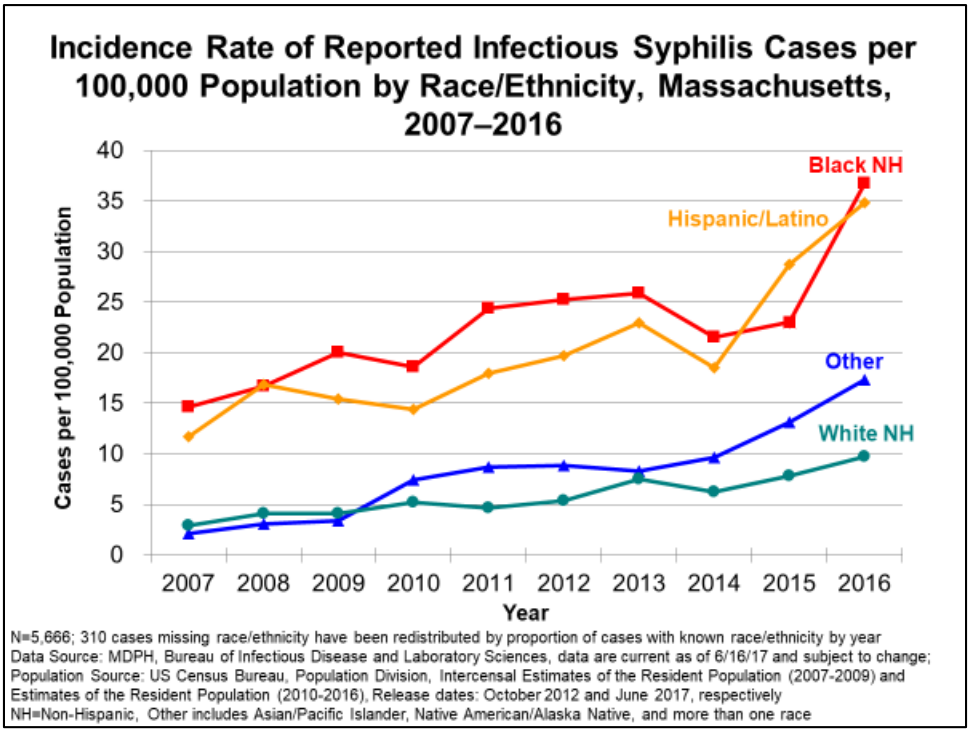
- The highest infectious syphilis incidence rates were in Suffolk (47.6 per 100,000) and Barnstable (17.1 per 100,000) counties.
- The statewide infectious syphilis incidence rate increased from 4.2 per 100,000 in 2007 to a ten-year high of 15.2 per 100,000 in 2016.
- Massachusetts ranked 18th in primary and secondary syphilis incidence rate among the 50 states.[2]

[2] Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2016. Atlanta: U.S. Department of Health and Human Services; 2017

SYPHILIS



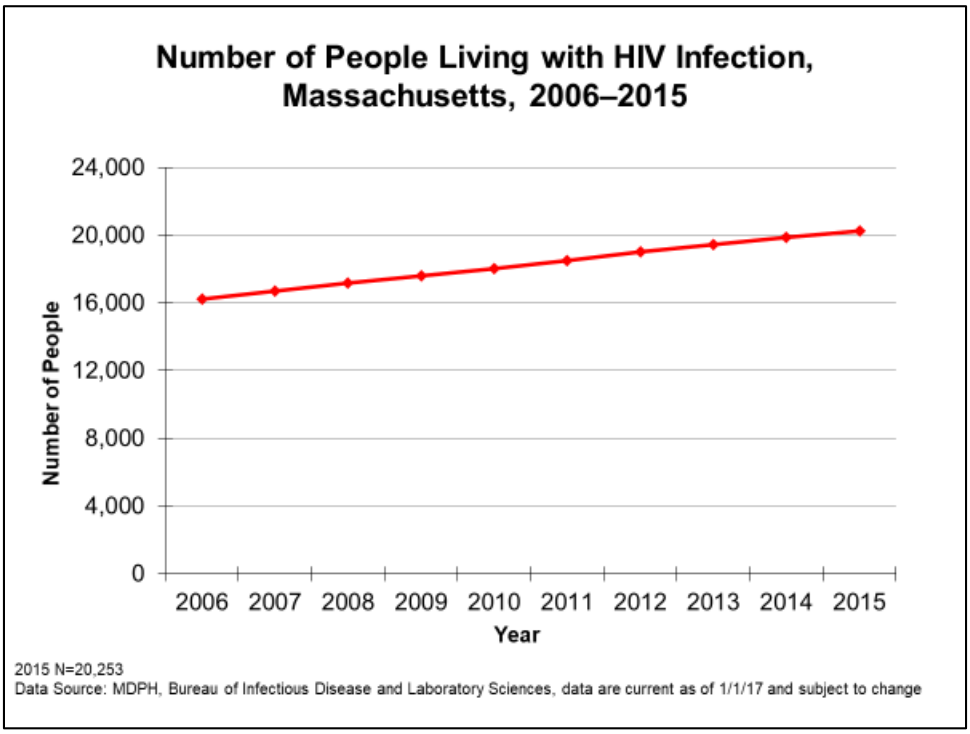
- In 2016, the infectious syphilis incidence rate was highest among individuals aged 25 to 29 years, followed by individuals 20 to 24 years, and 30 to 39 years.
- In 2016, the infectious syphilis incidence rates among individuals aged 25 to 29 years, 20 to 24 years, and 30 to 39 years were all approximately double the overall statewide incidence rate among all ages (40.1, 35.7, and 30.1, respectively, compared to 15.2 per 100,000).



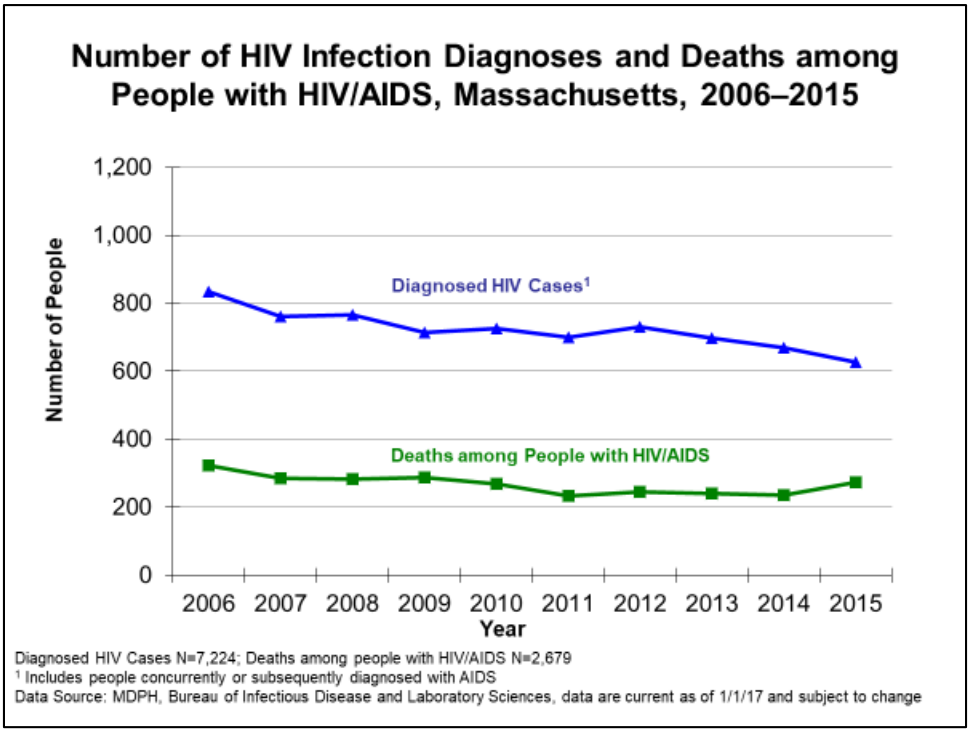
- In 2016, the infectious syphilis incidence rate was nearly four times higher among both the black (non-Hispanic) population (36.7 cases per 100,000) and the Hispanic/Latino population (34.8 cases per 100,000) compared to the white (non-Hispanic) population (9.8 cases per 100,000).

Additional information about infectious syphilis is available online at www.mass.gov/dph/cdc/std.

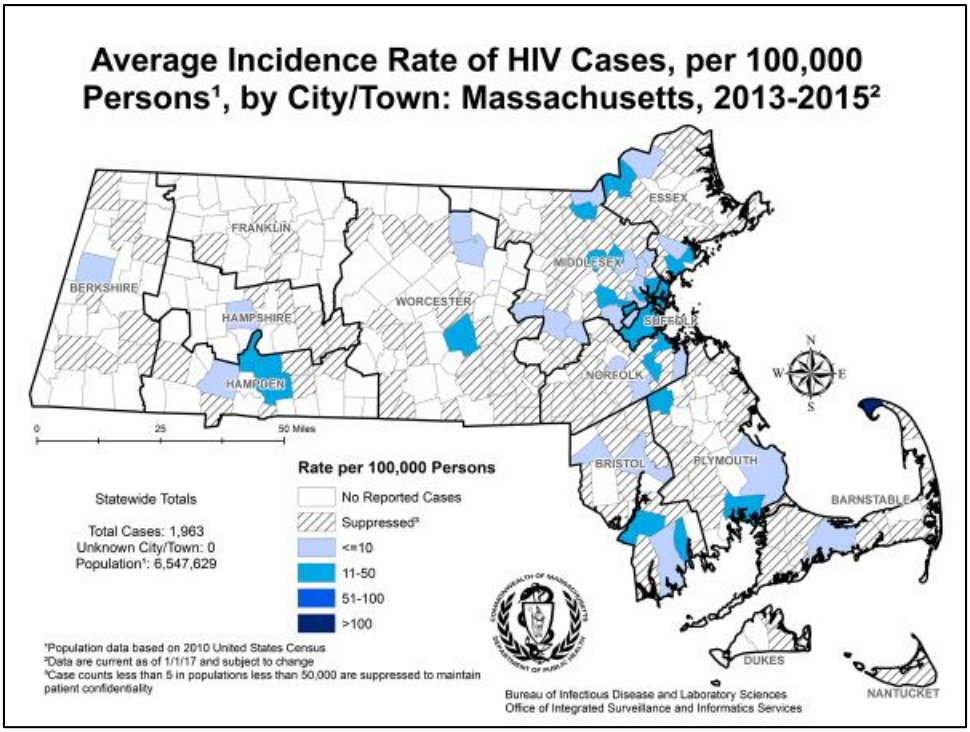
HIV/AIDS



- The number of people known to be living with HIV infection in Massachusetts increased by 25% from 16,218 on December 31, 2006 to 20,253 on December 31, 2015.

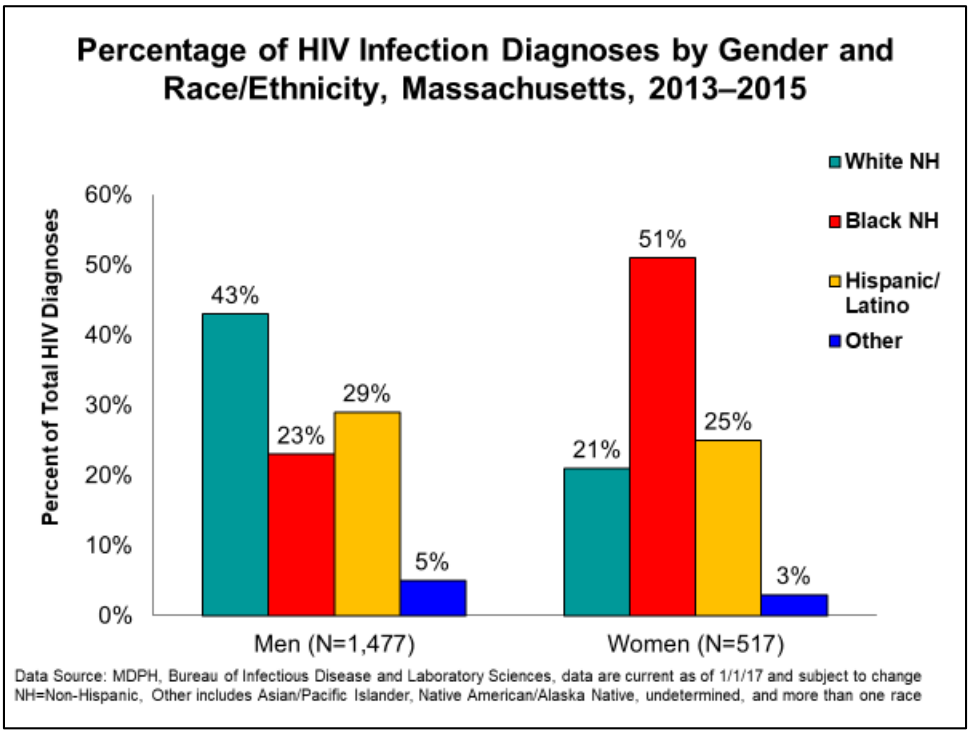


- In 2015, there were 627 HIV infections diagnosed and 273 deaths among people reported with HIV infection in Massachusetts.
- The number of HIV infection diagnoses decreased by 25% from 2006 (N=834) to 2015 (N=627).
- The number of deaths among people reported with HIV/AIDS decreased by 16% from 324 in 2005 to 273 deaths in 2015.

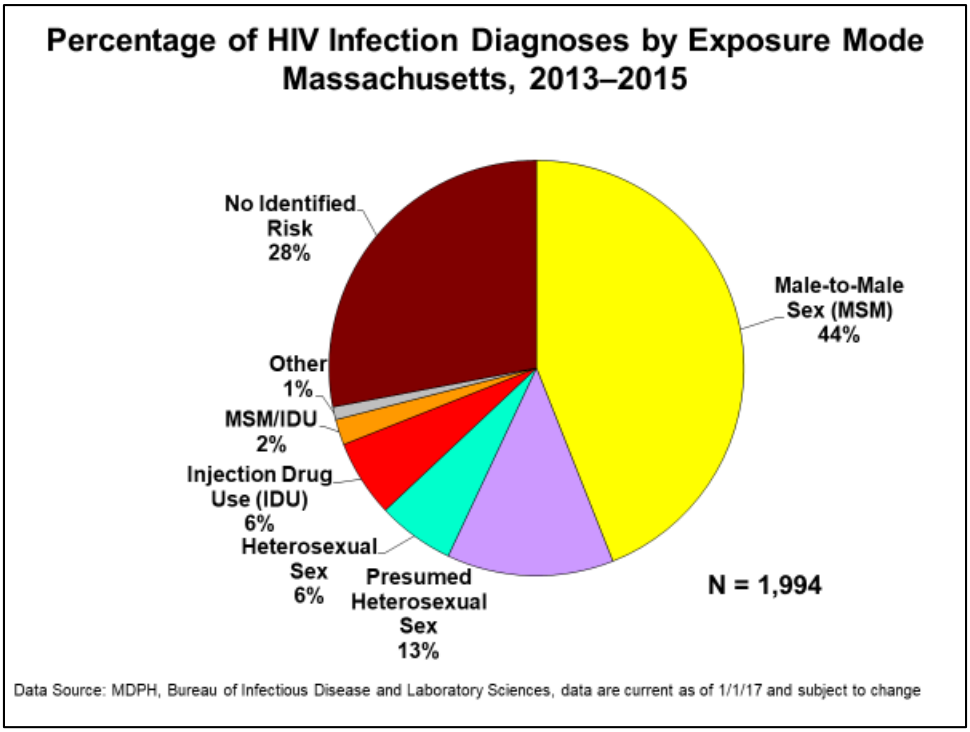


- Of the 351 cities and towns in Massachusetts, 206 (59%) had at least one reported HIV infection diagnosis from 2013 to 2015.
- The majority of HIV infection diagnoses were reported among people living in large urban areas, with the exception of Provincetown.
- Of those cities and towns where HIV infections were diagnosed within the three-year period 2013 to 2015, the majority (87%) had rates under ten per 100,000 population.
- Provincetown was the only locality with a rate of over 100 per 100,000 during this time period.
- Other areas with higher incidence rates were clustered in and around major cities such as Boston, Worcester, and Springfield.

HIV/AIDS

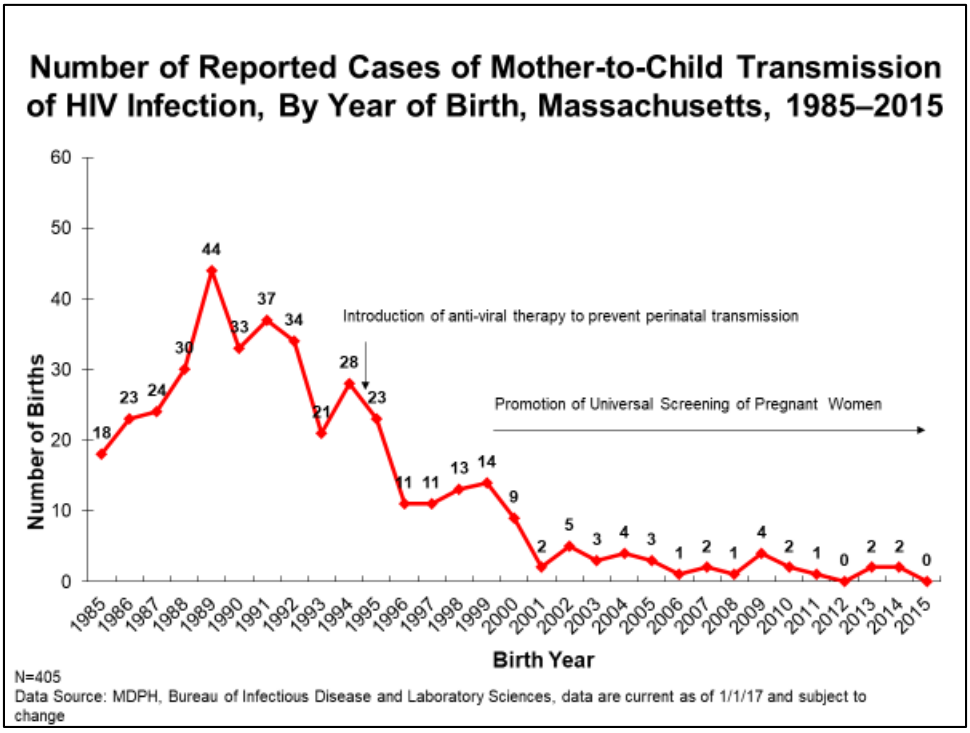


- From 2013 to 2015, of the 1,994 HIV infections newly diagnosed in Massachusetts, 1,477 (73%) were among men and 517 (27%) were among women.
- Among men, the largest proportion of newly diagnosed HIV infections were among white (non-Hispanic) men, whereas among women the majority of newly diagnosed HIV infections were among black (non-Hispanic) women.
- With age-adjusted annual average rates of HIV diagnosis during 2013 to 2015 of 47.0 and 30.5 cases per 100,000 population, black (non-Hispanic) and Hispanic/Latino individuals were diagnosed at rates 10 and 6 times that of white (non-Hispanic) individuals (4.8 per 100,000), respectively.
    - Among women, the disparity was more pronounced: the age-adjusted annual average rate of HIV diagnosis during 2013 to 2015 among black (non-Hispanic) women (40.0 per 100,000) was 27 times, and among Hispanic/Latina women (14.5 per 100,000) was 10 times that of white (non-Hispanic) women (1.5 per 100,000).



- From 2013 to 2015, the primary risk reported for newly diagnosed HIV infection in Massachusetts was male-to-male sex (44%). A substantial proportion of diagnoses were reported with No Identified Risk (28%).[3]

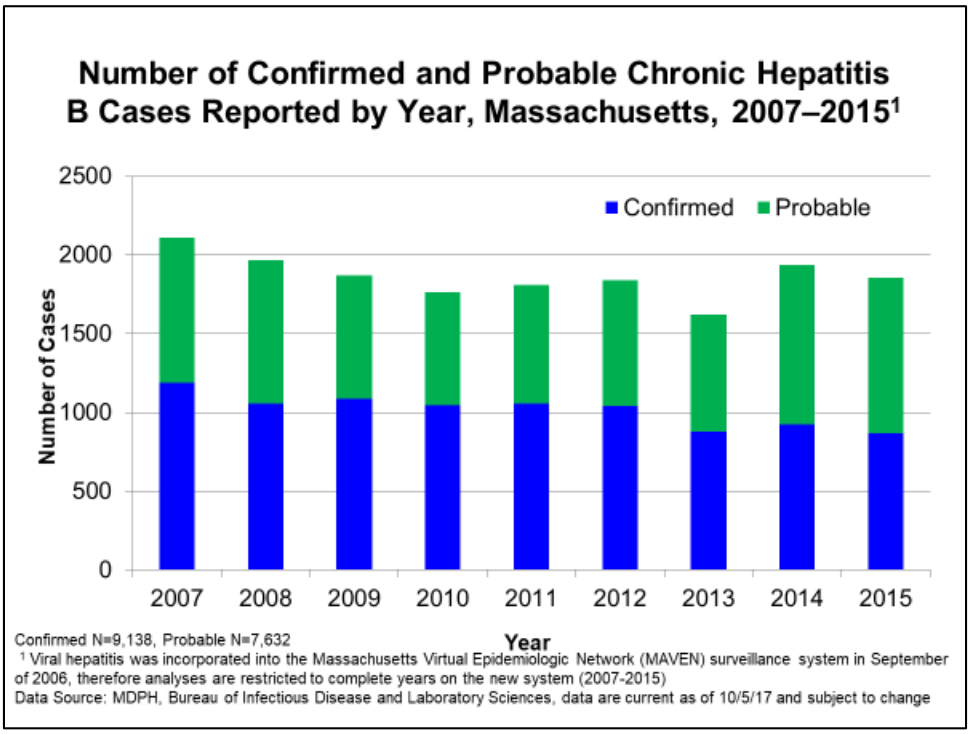
[3] The category of presumed heterosexual is used exclusively for women, to define HIV exposure mode among cases when sex with men is the only reported risk factor for HIV infection.



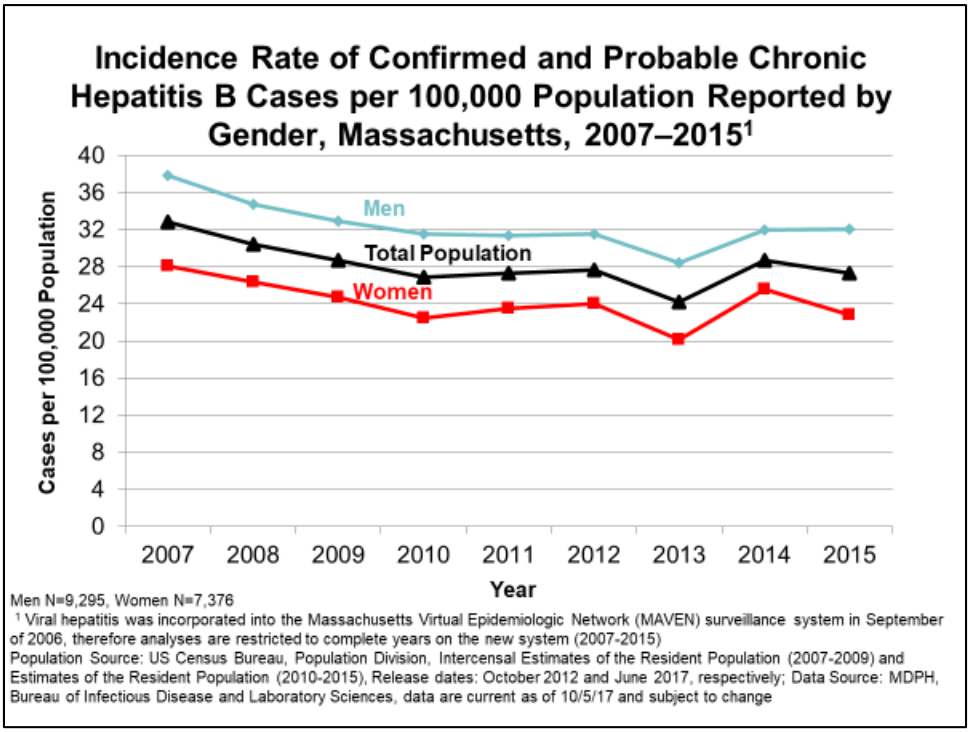
- Since the mid-1990's, there has been a dramatic reduction in mother-to-child transmission of HIV infection related to high rates of antiretroviral treatment of HIV+ women, and progress in HIV screening during pregnancy.
- From 2006 to 2015, the number of HIV-infected newborns remained between zero and four cases annually, with no cases identified in 2015.

Additional information about HIV/AIDS is available online through the MDPH HIV/AIDS Epidemiologic Profile at www.mass.gov/dph/cdc/aids.

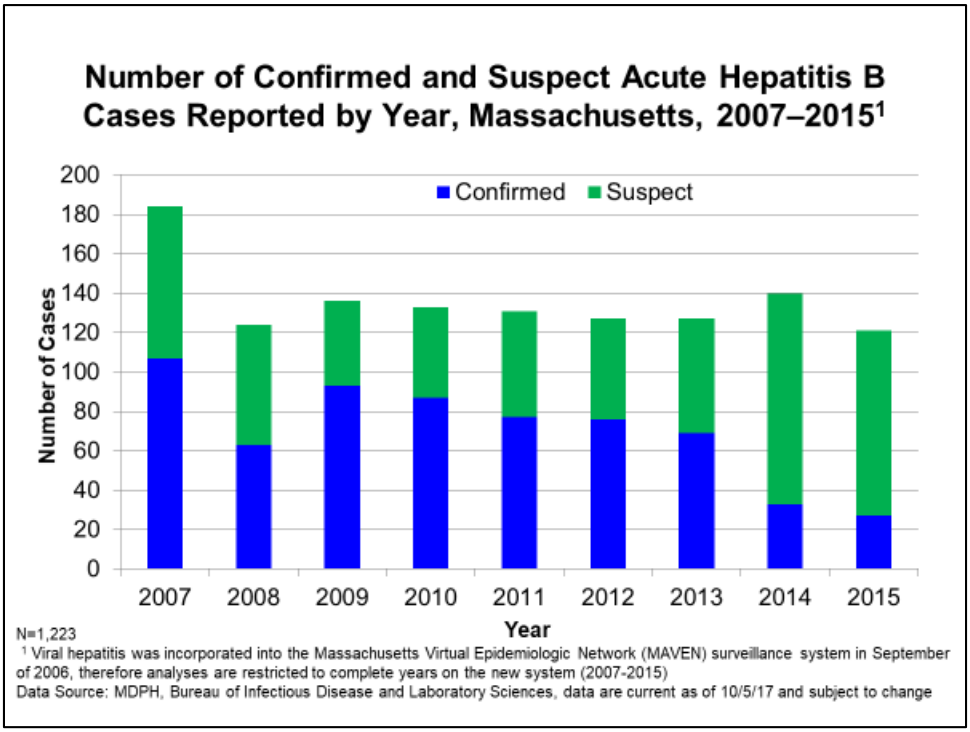
VIRAL HEPATITIS – HEPATITIS B



- An average of 1,863 [range: 1,621 (2013) – 2,110 (2007)] confirmed and probable chronic hepatitis B virus (HBV) infection cases were reported each year from 2007 to 2015.
- In 2015, 870 confirmed chronic HBV infection cases were reported. An additional 983 probable cases were reported for a total of 1,853 confirmed and probable HBV cases.

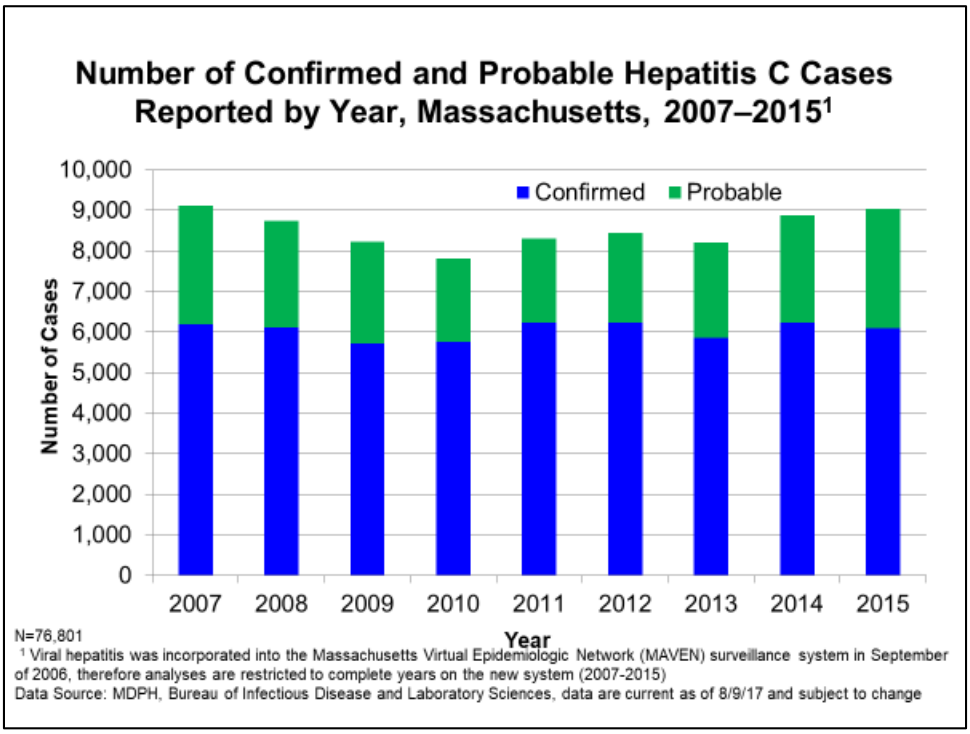


- The incidence of newly diagnosed confirmed and probable chronic HBV infection cases among men decreased from 37.8 per 100,000 in 2007 to 32.0 per 100,000 in 2015. The incidence of newly diagnosed chronic HBV infection among women decreased from 28.1 per 100,000 in 2007 to 22.9 per 100,000 in 2015.



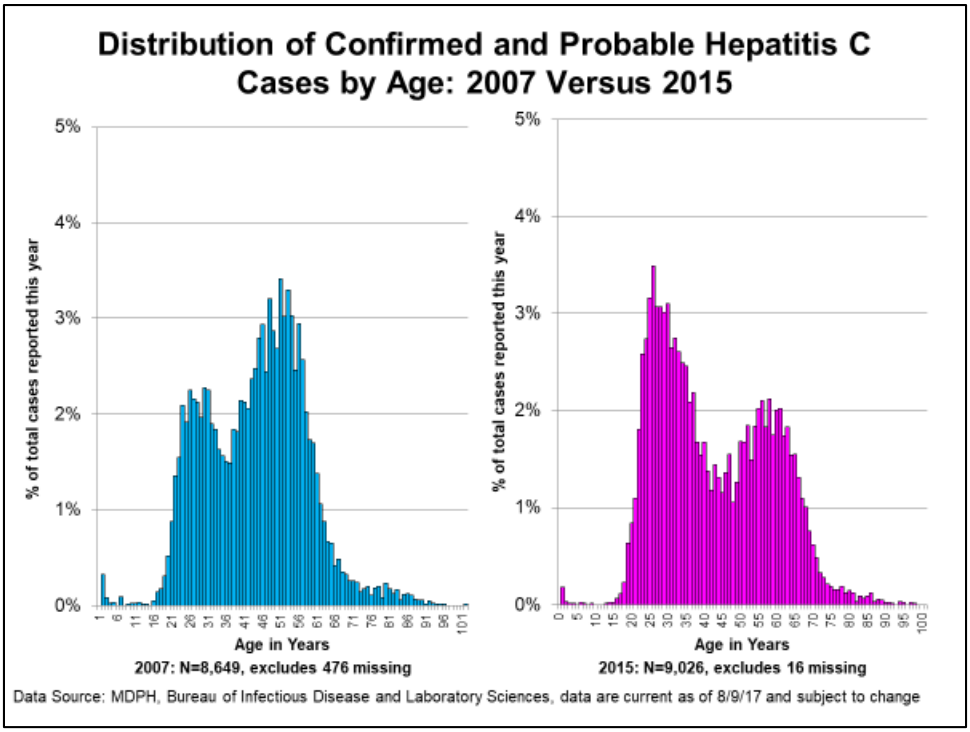
- While 184 confirmed and suspect acute HBV infection cases were reported in 2007, an average of 130 [range: 121 (2015) – 140 (2014)] confirmed and suspect acute HBV cases were reported each year from 2008 to 2015.
- In 2015, there were 27 confirmed acute and 94 suspect acute HBV cases for a total of 121 acute cases.

VIRAL HEPATITIS - HEPATITIS C

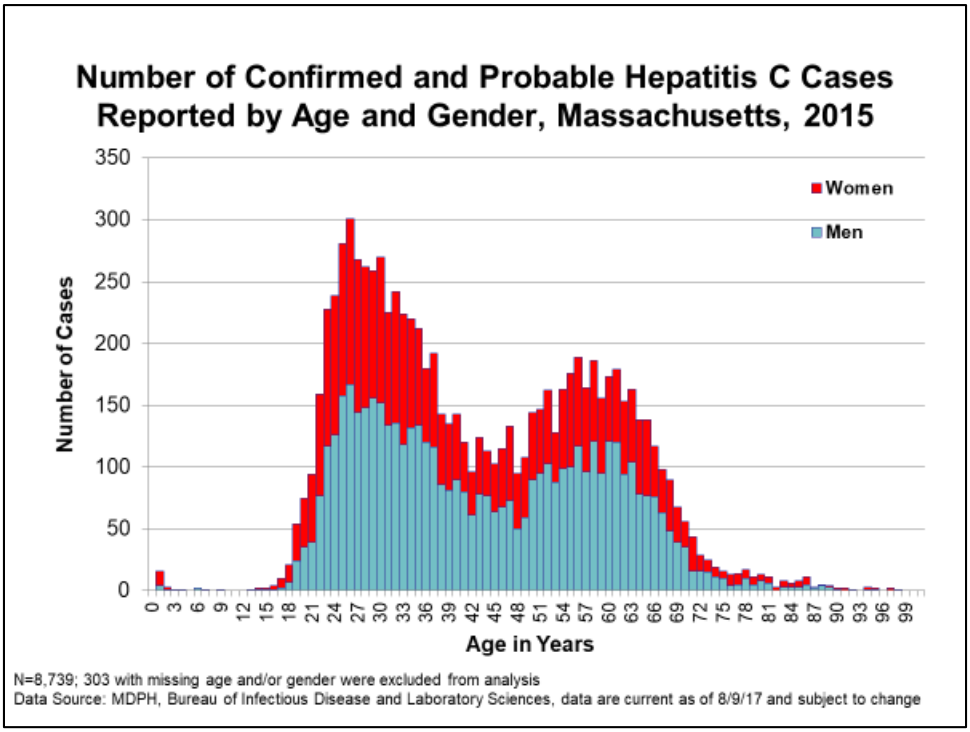


- The annual number of newly diagnosed confirmed and probable hepatitis C cases reported in Massachusetts since 2007 remained high with about 8,000 to 9,000 cases reported each year.
- There were 6,095 confirmed and 2,947 probable hepatitis C cases reported to MDPH in 2015, for a total of 9,042.
- Please note, in 2016, revised case definitions for acute and chronic HCV infection were implemented that will contain significant changes from the previous case definitions which apply to data presented here. For further information see https://wwwn.cdc.gov/nndss/conditions/ .

VIRAL HEPATITIS - HEPATITIS C

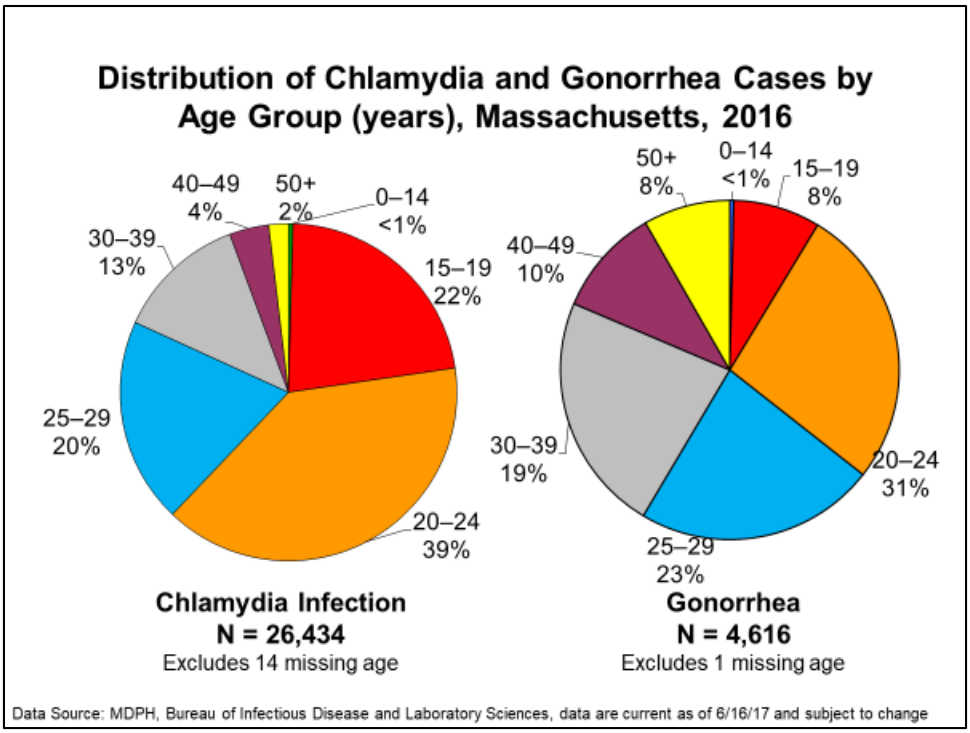


- In 2007, reported cases of hepatitis C were distributed in a curve with two age peaks, with the lower peak at age 28 years and the higher peak at age 50 years.
- In 2015, the reported cases were again distributed in a bi-modal curve, but with the higher peak at age 26 years and the lower peak at age 57 years.



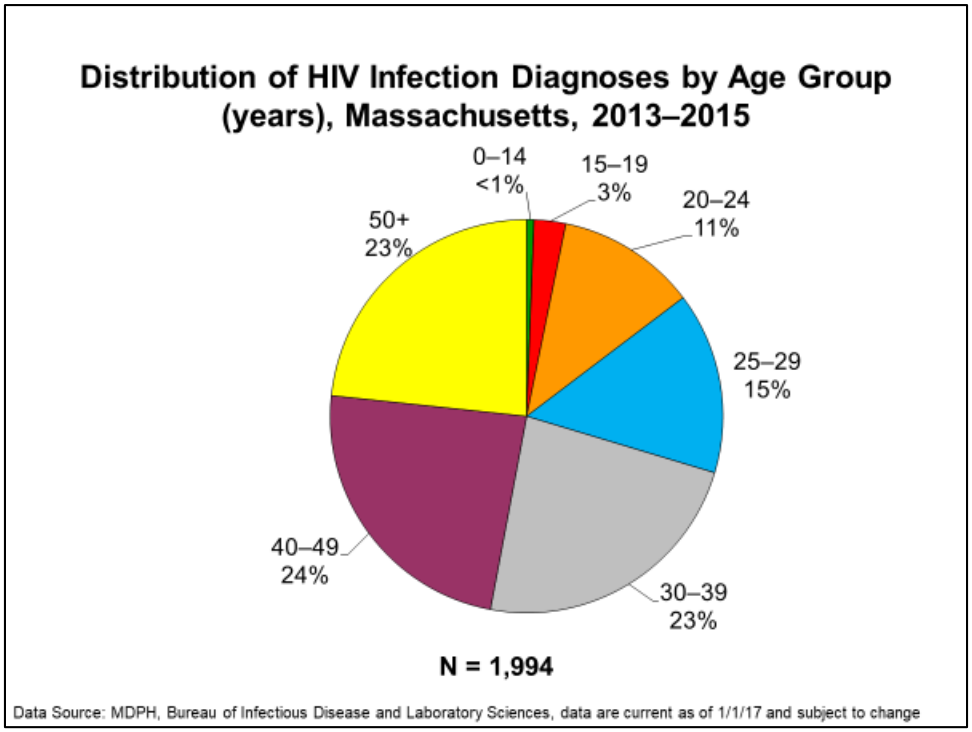
- Fifty-three percent of confirmed and probable hepatitis C infection cases in those less than 30 years of age were men, and 47% were women.
- The majority of new hepatitis C infections among persons less than 30 years of age were attributable to blood exposure through injection drug use.
- Sixty percent of confirmed and probable hepatitis C infection cases in those 30 years of age and older were men, and 40% were women.

SPECIFIC POPULATIONS: ADOLESCENTS & YOUNG ADULTS

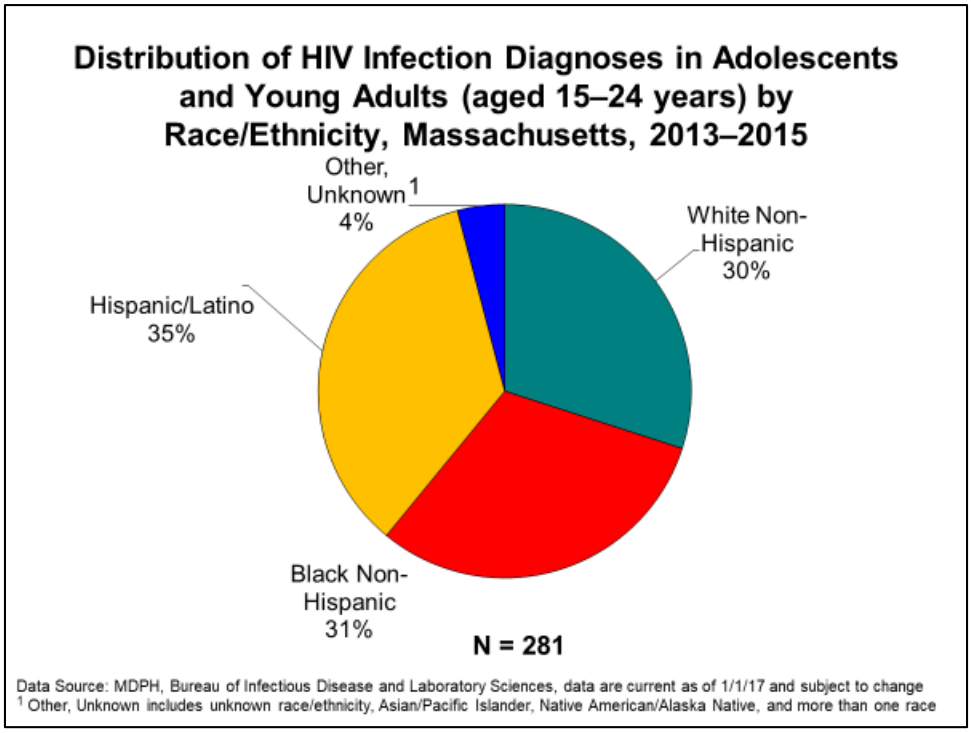


- In 2016, in Massachusetts, 61% of chlamydia cases and 39% of gonorrhea cases were reported among adolescents and young adults aged 15–24 years.
    - Nationally in 2016, 63% of chlamydia cases and 47% of gonorrhea cases were reported among adolescents and young adults aged 15–24 years.[4]

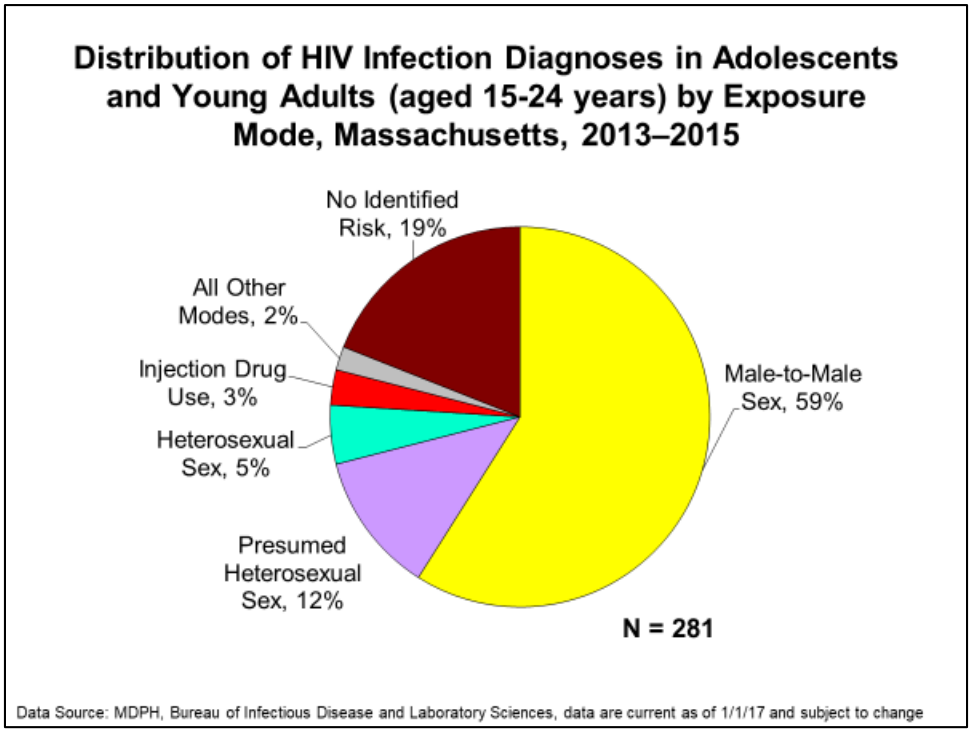
[4] Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2016. Atlanta: U.S. Department of Health and Human Services; 2017



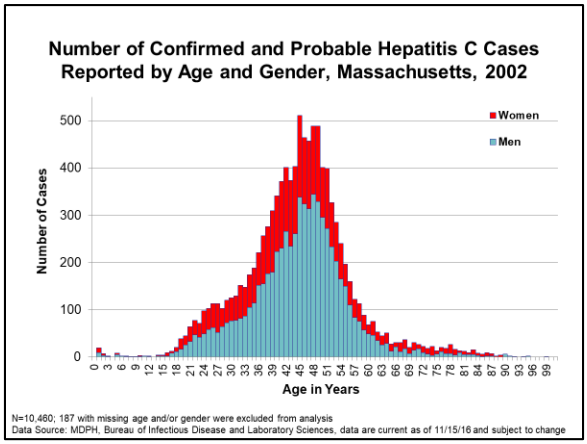
- During 2013 to 2015, 14% of HIV infection diagnoses were reported among adolescents and young adults aged 15–24 years.

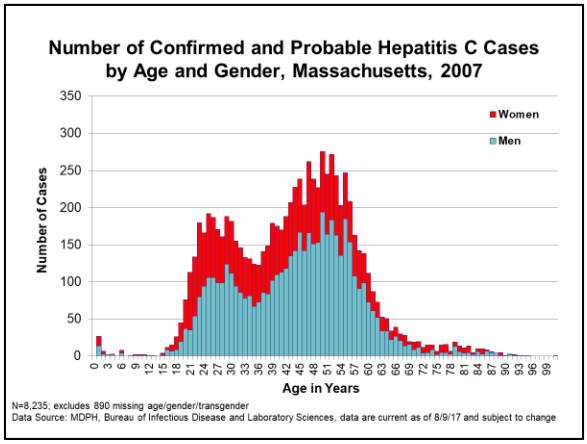


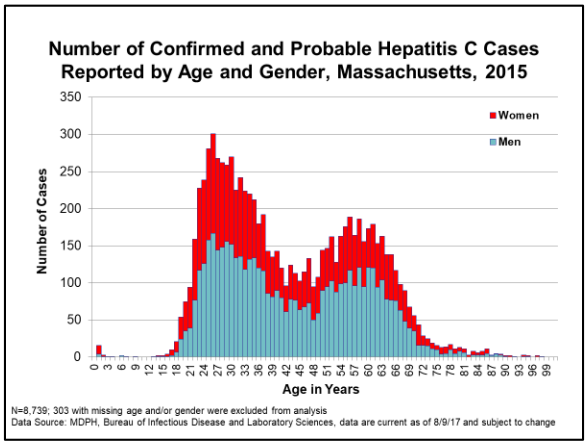
- The racial/ethnic distribution of adolescents and young adults (aged 15–24 years) diagnosed with HIV infection was: white (non-Hispanic) (30%), black (non-Hispanic) (31%), Hispanic/Latino (35%), and other (4%).



- During 2013 to 2015, the primary exposure mode for HIV infection among adolescents and young adults was male-to-male sex (59%), followed by presumed heterosexual sex (12%), heterosexual sex (5%), injection drug use (3%), and all other exposure modes (2%). Sixteen percent of adolescents and young adults were reported with no identified risk (NIR) for HIV exposure.







- The age distribution of hepatitis C virus (HCV) cases reported in Massachusetts changed between 2002 and 2015 with a significant increase in cases among young persons who inject drugs.
- In 2002, reported HCV cases were distributed in a curve with one age peak at 45 years.
- By 2007, the development of a second epidemic among younger persons became apparent, as reported cases were distributed in a bi-modal curve with one peak at 25 years of age and a second peak at 50 years.
- In 2015, HCV cases among young persons who inject drugs outnumbered newly reported cases among the older age ("baby boomer") cohort.
- The proportion of cases among young women (aged 15–24 years) was higher in 2007 (55%, N=425/771) and 2015 (52%, N=457/886) compared to 2002 (46%, N=206/446).
- The primary risk for hepatitis C infection in younger adults is injection drug use. Thus far, a similar epidemic of HIV infection in this population has not been identified, most likely because of low prevalence of HIV infection among young people who use drugs in recent years. However, introduction of HIV infection among injecting drug using networks could lead to increased incidence of HIV infection in this population.

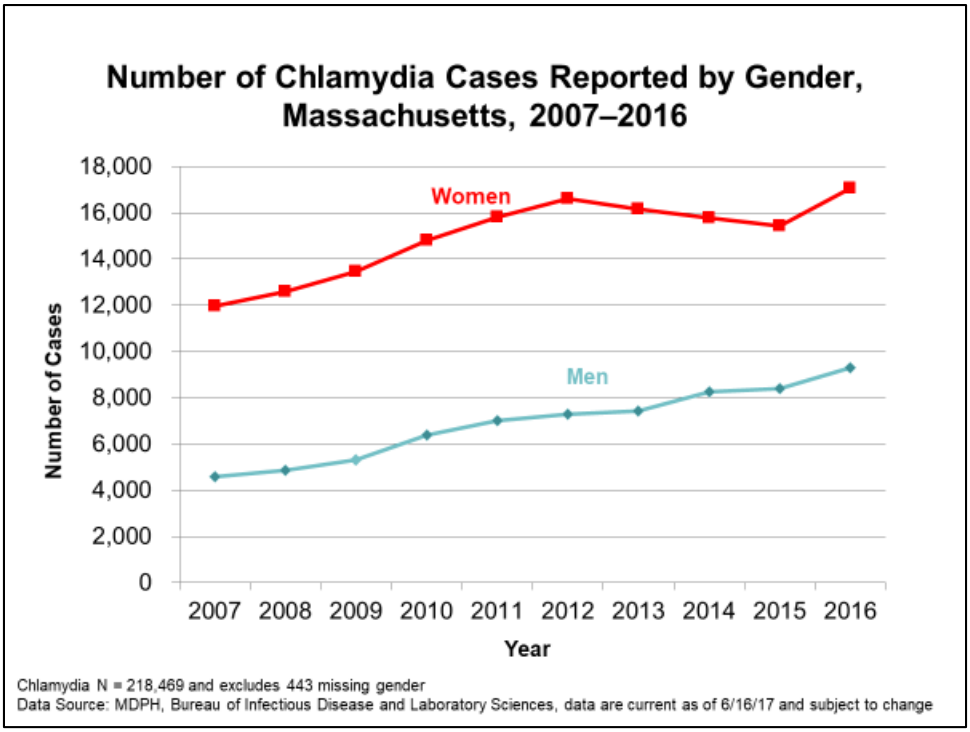
Reported Sexual Behaviors Among Massachusetts High School Students, 2007–2015[1]

	Percentage who reported:				
	2007	**2009**	**2011**	**2013**	**2015**
Ever having sexual intercourse	44	46	42	38	36
Having sexual intercourse before age 13	6	5	4	3	3
Having had sexual intercourse with 4+ partners during their life	12	13	11	9	8
Ever injecting an illegal drug	3	2	2	1	1
Using a condom at last sexual intercourse	61	58	58	58	63
Ever being taught about HIV/AIDS in school	89	87	84	85	80

[1] Unweighted sample size by year: 2007 (N=3,131), 2009 (N=2,707), 2011 (N=2,729), 2013 (N=2,718), 2015 (N=5,738)
Data Source: Massachusetts Department of Elementary and Secondary Education, Massachusetts Youth Risk Behavior Survey

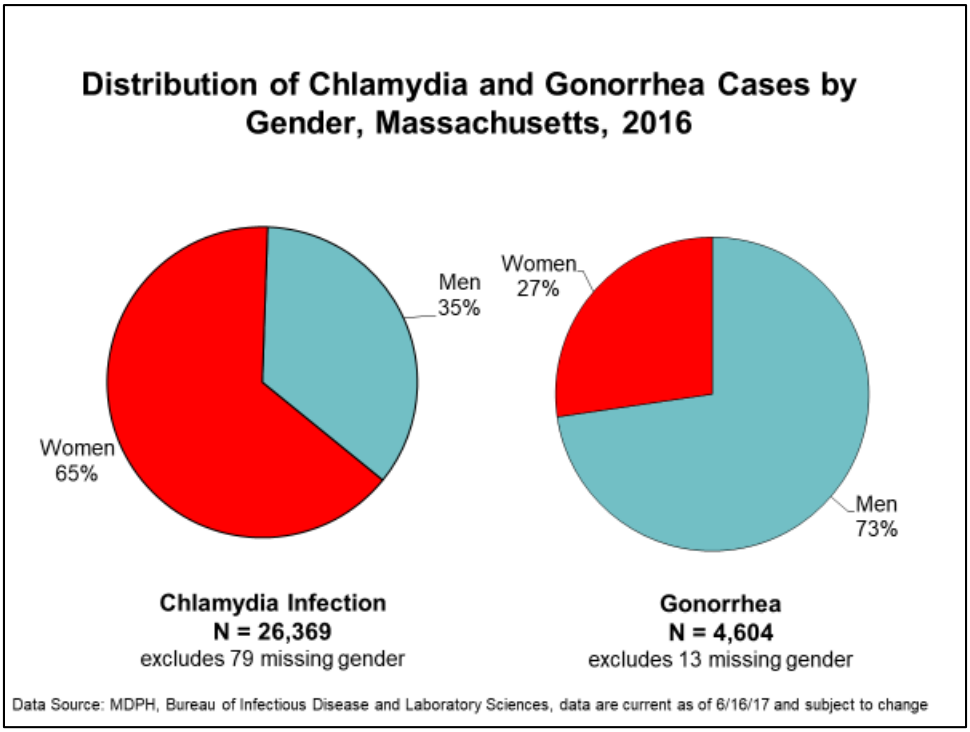
- The Massachusetts Youth Risk Behavior Survey (MYRBS) is performed biennially among a sample of ninth to twelfth grade students.
- Three indicators of high risk youth sexual behavior (ever having sexual intercourse, having sexual intercourse before age 13 years, having had sexual intercourse with four or more partners during their life) reached their lowest levels in 2015 (36%, 3%, and 8%, respectively).
- Lifetime injection drug use remained at a low of 1% in 2015.
- One protective correlate of sexual behavior, ever being taught about HIV/AIDS in school, declined to a low of 80% in 2015.
- Using a condom at last sexual intercourse increased to 63% in 2015.

SPECIFIC POPULATIONS: WOMEN



- Unlike gonorrhea, chlamydia infection in Massachusetts is more commonly diagnosed and reported among women. Routine screening for chlamydia infection is recommended for asymptomatic, sexually active women age 24 years and younger and among older women who are at increased risk for infection by the U.S. Preventive Services Task Force (USPSTF).[5]
- From 2007 to 2016, the number of chlamydia cases reported among women increased by 43% (from 11,968 to 17,062).
- The number of chlamydia cases reported among men doubled from 2007 (N=4,584) to 2016 (N=9,307). Routine screening is not currently recommended by the USPSTF for all sexually active men.

[5] *Published Recommendations*. U.S. Preventive Services Task Force. https://www.uspreventiveservicestaskforce.org/BrowseRec/Index/browse-recommendations



- In 2016, 65% of reported chlamydia cases were among women (N=17,062) and 35% were among men (N=9,307).
- In 2016, 27% of reported gonorrhea cases were among women (N=1,258) and 73% were among men (N=3,346).

Chlamydia and Gonorrhea Screening:

Since 1997, the Division of STD Prevention has partnered with other agencies to reduce pelvic inflammatory disease, infertility and other health consequences of chlamydia and gonorrhea infection through screening and treatment of women who are at higher risk for infection.

- In 2016, specimens collected from reproductive age women (16 to 44 years) were tested at the Massachusetts State Public Health Laboratory for chlamydia and gonorrhea infection, with 7.5% and 1.1% positivity, respectively.

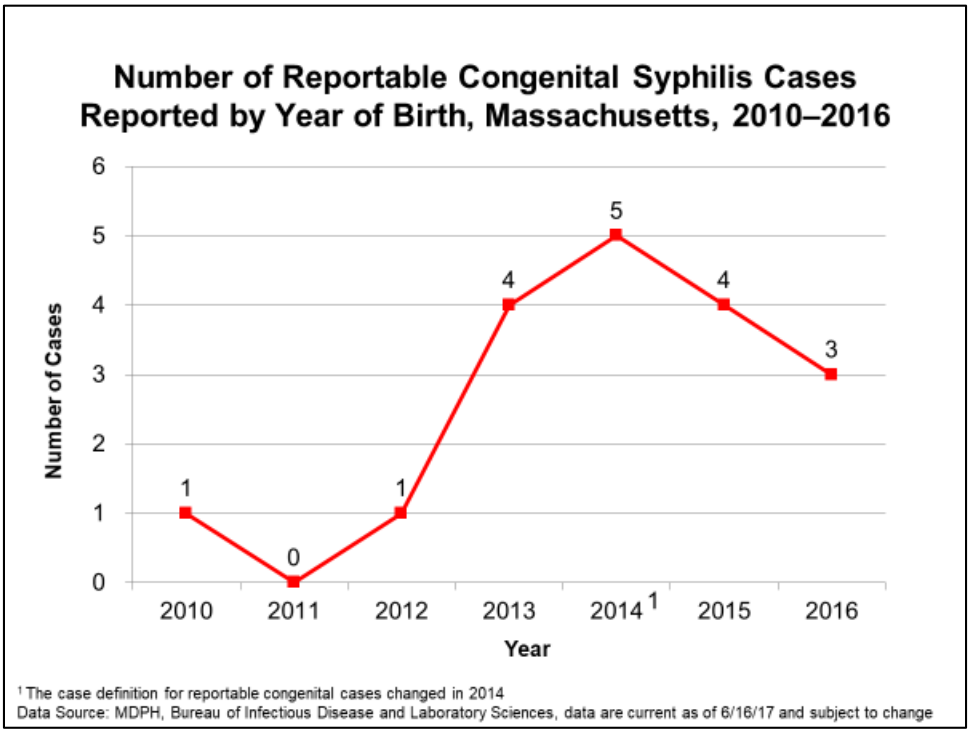
- Test results from selected sites have yielded the following:

Chlamydia & Gonorrhea Screening Projects, Percent Positive for Infection Among Women of Reproductive Age, Massachusetts, 2016*

Site Type	Number tested	Percent positive for chlamydia	Percent positive for gonorrhea
School-Based Health Centers	1,165	9%	<1%
Correctional Facilities	1,823	7%	3%
Family Planning Clinics	980	9%	1%
Hospital Based Clinic	1,089	7%	1%
Expanded STD Screening Sites*	8,136	7%	1%

Data Source: MDPH Bureau of Infectious Disease and Laboratory Sciences
**Includes reproductive age women (aged 16 to 44 years), tested at Prevention, Integrated Counseling, Screening, and Referral sites under former IPP funding now known as Safety Net Services.*

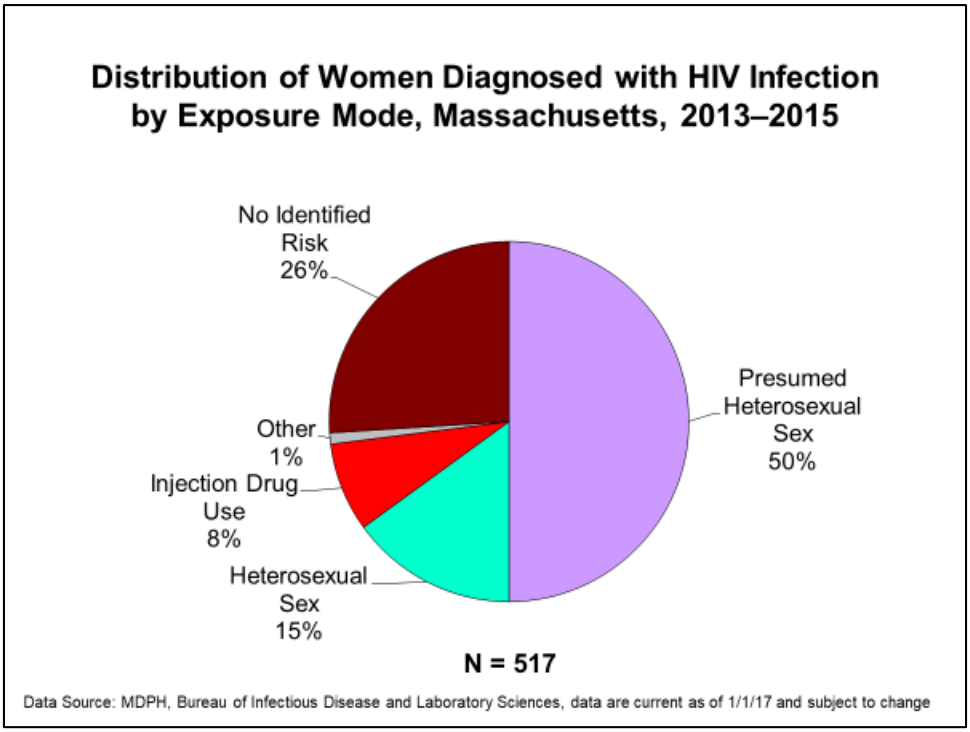
Congenital Syphilis Prevention:



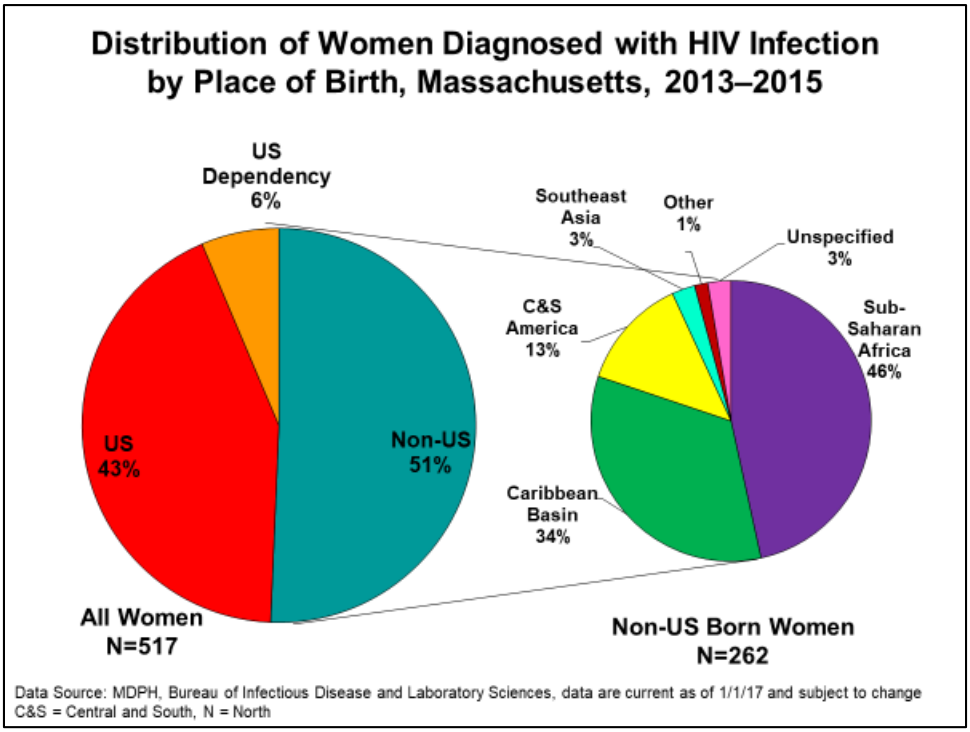
- In 2016, there were three reported cases of congenital syphilis[6] in Massachusetts and the congenital syphilis rate was 4.2 cases per 100,000 live births.
- The recent increase in reported congenital syphilis cases parallels increases in infectious syphilis being reported among reproductive aged women (15–49 years) in Massachusetts.
- This mirrors national trends, where after a period of decline from 2008 to 2012, congenital syphilis rates increased by 87% between 2012 and 2016 (from 8.4 to 15.7 cases per 100,000 live births).[7]
- The few cases of congenital syphilis occurring in Massachusetts were born to women with little or no prenatal care, or women who were not known to be at high risk for syphilis infection, and therefore did not receive repeat syphilis screening in the third trimester or at delivery.

[6] A condition caused by infection in utero with *Treponema pallidum*. A wide spectrum of severity exists, from inapparent infection to severe cases that are clinically apparent at birth. For more information see http://www.cdc.gov/std/stats/congenitalsyphilisdef-rev-jan-2015.pdf

[7] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2016.* Atlanta: U.S. Department of Health and Human Services; 2017.

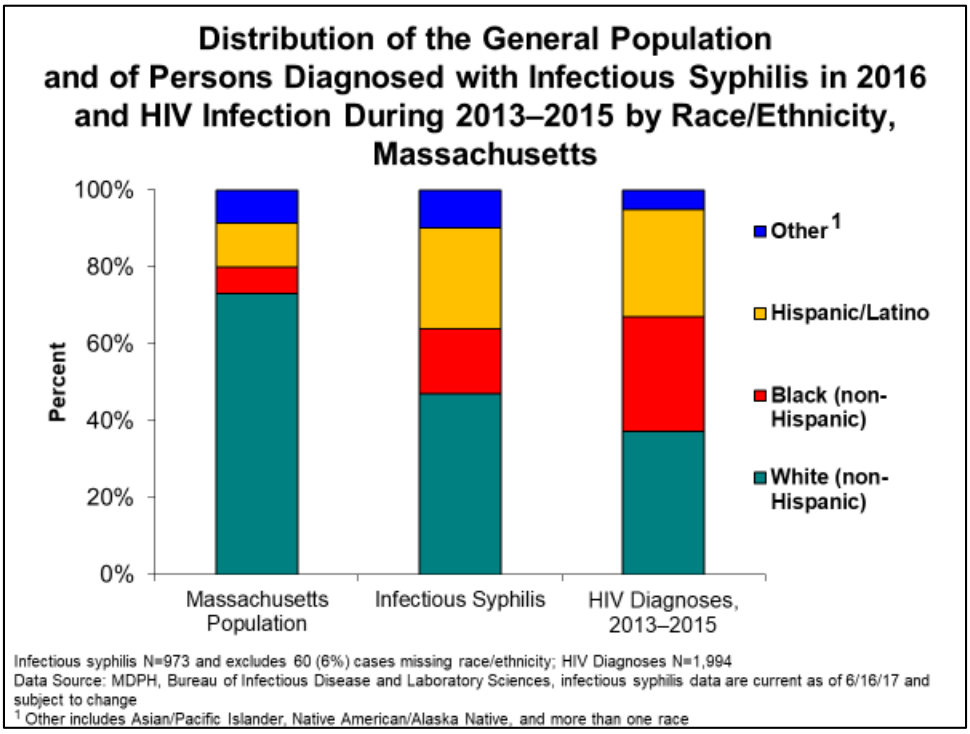


- During 2013 to 2015, presumed heterosexual sex (50%) was the predominant exposure mode for women diagnosed with HIV infection in Massachusetts, followed by heterosexual sex (15%), injection drug use (8%), and other exposure modes (1%). Twenty-six percent of women were reported with no identified risk for HIV exposure.

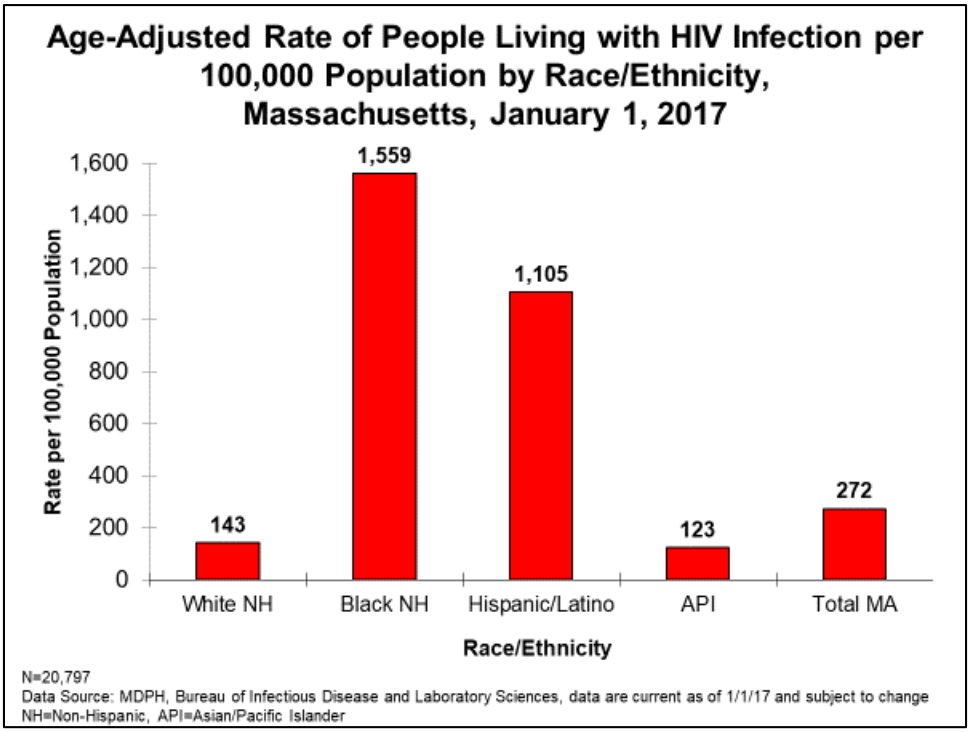


- During 2013 to 2015, 51% of women diagnosed with HIV infection were born outside of the U.S. Among men diagnosed with HIV infection during 2013 to 2015, only 31% were born outside of the U.S.
- Women born outside the United States, and recently diagnosed with HIV infection in Massachusetts, were primarily from sub-Saharan Africa (46%), the Caribbean (34%), and Central or South America (13%).

SPECIFIC POPULATIONS: RACIAL/ETHNIC MINORITIES

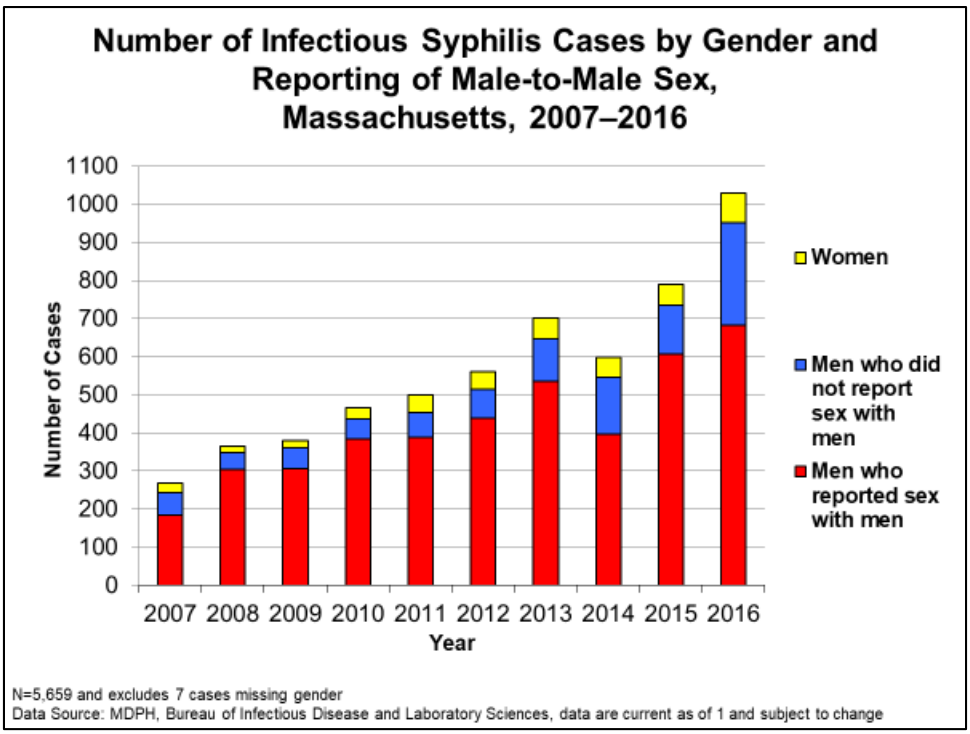


- In 2016, black (non-Hispanic) and Hispanic/Latino individuals represented 7% and 11% of the total Massachusetts population, and 17% and 26% of infectious syphilis cases (with known race/ethnicity), respectively.
- During 2013 to 2015, black (non-Hispanic) and Hispanic/Latino individuals represented 30% and 28% of individuals diagnosed with HIV infection in Massachusetts, respectively.

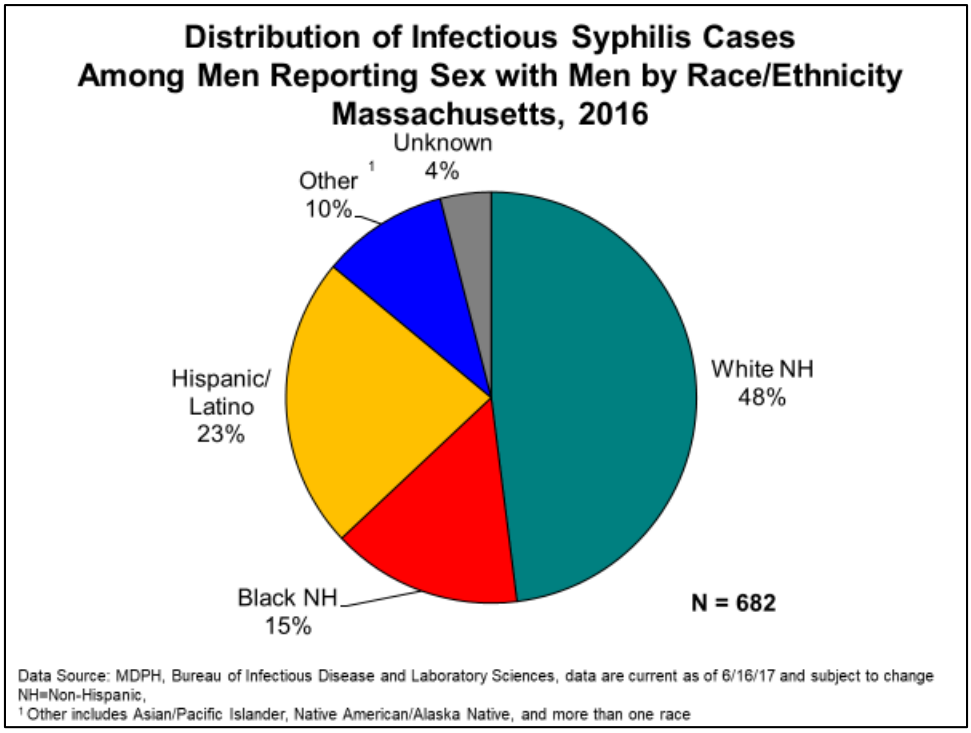


- In Massachusetts, in 2017, the age-adjusted HIV infection prevalence rate among the black (non-Hispanic) population (1,559 per 100,000) was 11 times greater, and among the Hispanic/Latino population (1,105 per 100,000) was 8 times greater than among the white (non-Hispanic) population (143 per 100,000).

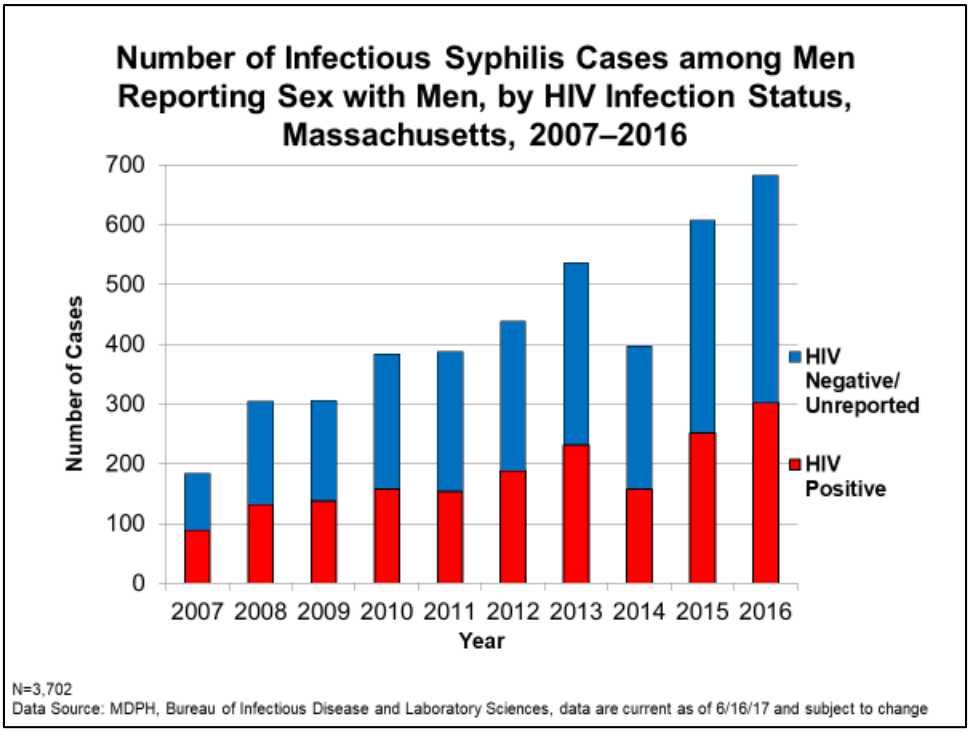
SPECIFIC POPULATIONS: MEN WHO HAVE SEX WITH MEN



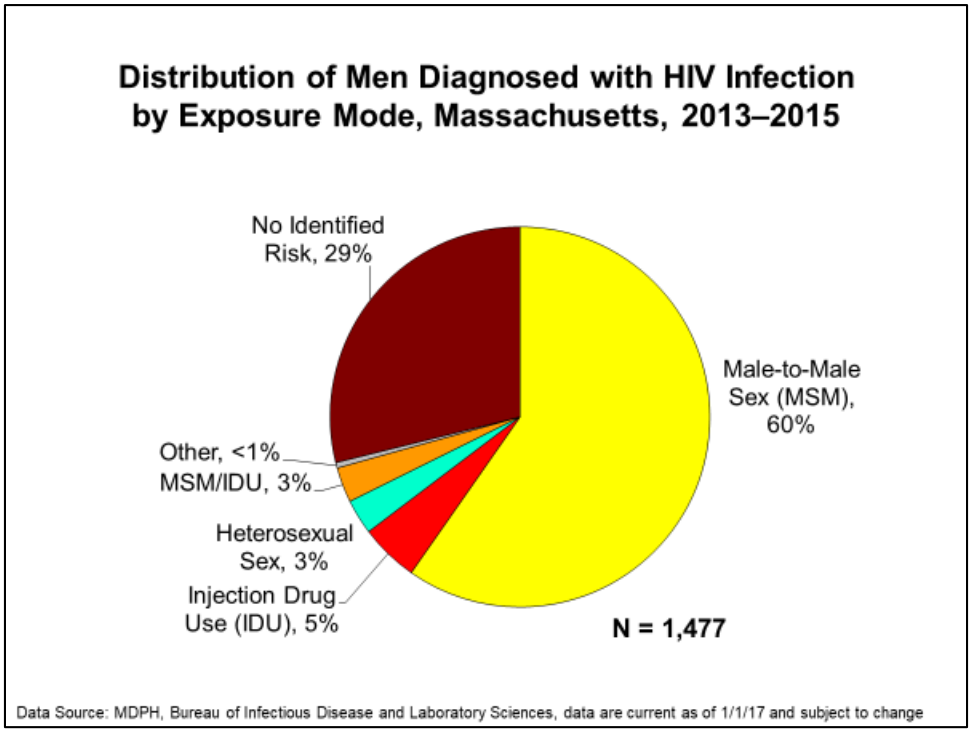
- Of the 1,030 infectious syphilis cases reported in 2016, 682 (66%) were among men who reported having sex with men (MSM).
- The proportion of infectious syphilis cases among MSM was above 65% from 2007 to 2016.
- From 2007 to 2016, the number of reported infectious syphilis cases among MSM more than tripled, from 184 to 682.



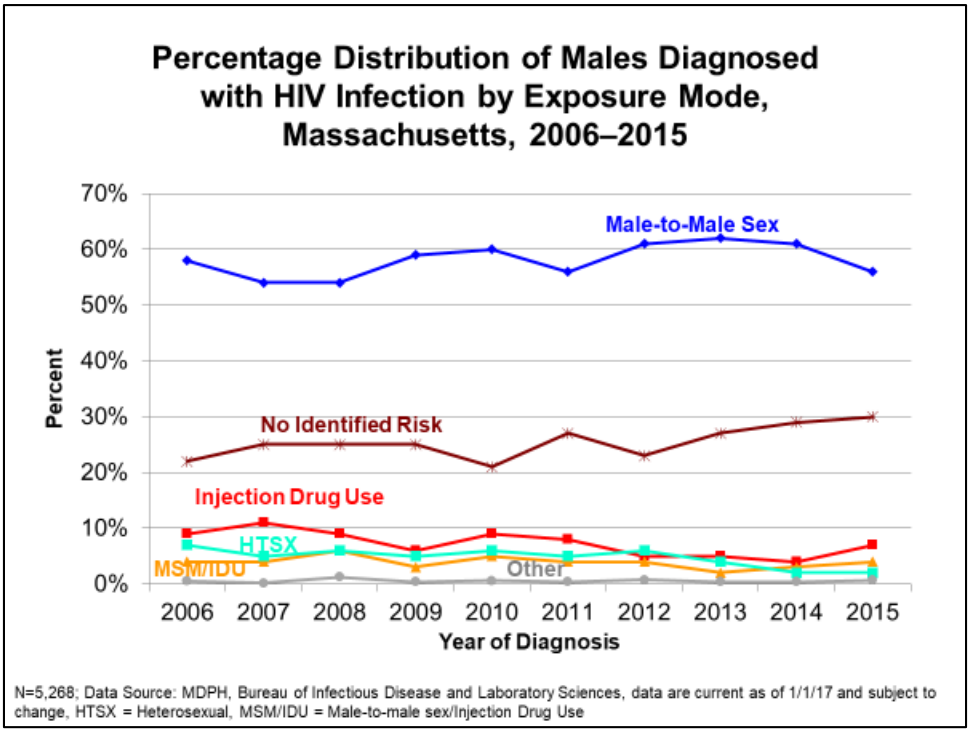
- The racial/ethnic distribution of MSM reported with infectious syphilis in 2016 was: white (non-Hispanic) (48%), Hispanic/Latino (23%), black (non-Hispanic) (15%), and other (10%). An additional 4% of cases were reported with unknown race/ethnicity.



- In 2016, 44% (N=302) of infectious syphilis cases among men reporting sex with men, also reported that they were co-infected with HIV.



- During 2013 to 2015, male-to-male sex was the predominant exposure mode (60%) for men diagnosed with HIV infection in Massachusetts. Twenty-nine percent of men were reported with no identified risk for HIV exposure, some of whom may be MSM.



- Among men, the proportion of HIV infection diagnoses with male-to-male sex as the reported mode of exposure remained between 54% and 62% from 2006 to 2015. During the same time period, the proportion reported with no identified risk increased from 22% to 30%.

Strengths and Limitations of Data

	HIV/AIDS Case Data	STD Case Data	Viral Hepatitis Case Data
Description	• Collected by MDPH Bureau of Infectious Disease and Laboratory Sciences • Reported statewide. • All laboratories and healthcare providers are required by law to report.		
	• Includes individuals first diagnosed with HIV infection in MA.	• Includes individuals first reported as living in MA.	• Includes individuals first reported as living in MA.
Strengths	• Completeness of race/ethnicity data is high. • All clinical laboratories in MA report electronically resulting in more complete and timely reporting of disease. • Data are estimated to be 99% complete.	• All clinical laboratories in MA report electronically resulting in more complete and timely reporting of disease. • Most infectious syphilis cases agree to interview, resulting in reasonably complete race/ethnicity and sex of sex partner data.	• All clinical laboratories in MA report electronically resulting in more complete and timely reporting of disease.
Limitations	• Due to follow up conducted to verify accurate date of diagnosis, annual incidence data are released a year after the close of the year. For example, 2016 HIV diagnoses through December 31, 2016 will be released on January 1, 2018.	• Race/ethnicity data are incomplete for gonorrhea and chlamydia cases. • Sex of sex partner is not routinely collected for gonorrhea and chlamydia cases. • Bias is introduced for some STDs, such as chlamydia infection, where screening of asymptomatic persons occurs more frequently among women than among men.	• Race/ethnicity data are incomplete. • Risk history data are not collected on chronic HBV cases.
Massachusetts Youth Risk Behavior Survey			
Description	The Massachusetts Youth Risk Behavior Survey (MYRBS) is conducted every two years through a collaborative effort between the Massachusetts Department of Elementary and Secondary Education (ESE) and Department of Public Health (DPH) to monitor health indicators, behaviors, and risk factors contributing to the leading causes of morbidity, mortality, and social and academic problems among adolescents.		
Strengths	A two-stage sampling method is used to produce representative samples of students in grades 9 – 12. Response rates are high.		
Limitations	All data collected for the MYRBS and the MYHS are based on self-report from students. Self-reported data may be subject to error for several reasons, including inaccurate recall of events.		

Interpreting HIV/AIDS, STD, and Viral Hepatitis Data

Hepatitis B surveillance data are current as of October 5, 2017, hepatitis C data are as of August 9, 2017, HIV/AIDS data are as of January 1, 2017 and STD data are as of June 16, 2017. All data are subject to change.

I. HIV/AIDS Exposure Mode Definitions

The HIV/AIDS exposure mode indicates the most probable risk behavior associated with HIV infection. Assignment of exposure mode is done in accordance with Centers for Disease Control and Prevention (CDC) guidelines when multiple exposure modes are reported. Following is a description of the exposure mode categories:

- **MSM (Male to Male Sex):** Includes males who report sexual contact with other males, and males who report sexual contact with both males and females. Please note the acronym MSM is also used to refer to "men who have sex with men".
- **IDU (Injection Drug Use):** Cases among persons who report injection drug use.
- **MSM/IDU:** Cases among males who report both injection drug use and sexual contact with other males.
- **Heterosexual Sex:** Cases among persons who report specific heterosexual sex with a person with, or at increased risk for, HIV infection (e.g. an injection drug user). The sub-categories for this mode of transmission are listed below.
  - *Heterosexual Sex w/ an Injection Drug User*
  - *Heterosexual Sex w/ a person w/ HIV infection or AIDS*
  - *Heterosexual Sex w/ Bisexual male*
  - *Other Heterosexual Sex*: *Includes all other sub-categories of risk, such as heterosexual contact with a person infected through a blood transfusion.*
- **Presumed Heterosexual:** Cases among females who report heterosexual sex but do not report any other personal risk or any knowledge of specific risk among their male sex partners. As of January 1, 2011, males who were previously grouped in this category are categorized as No Identified Risk. Presumed heterosexual is an exposure mode category used by the Massachusetts HIV/AIDS Surveillance Program. The CDC categorizes these cases as No Identified Risk.
- **Pediatric:** Infection before the age of 13 years, including mother to child transmission through pregnancy, childbirth or breastfeeding and blood transfusions to children.
- **NIR (No Identified Risk):** Cases among persons with no reported history of exposure to HIV through any of the listed exposure categories. Follow-up is conducted to determine risk for those cases that are initially reported without a risk identified. Includes cases among males who were previously categorized in Massachusetts as Presumed Heterosexual.

II. References to Newly Diagnosed HIV Infections

Due to the extensive follow up required to verify accurate date of diagnosis, all HIV/AIDS data reflect HIV infections diagnosed through 2015. Newly diagnosed HIV infections/cases include all persons diagnosed with HIV from 2013 to 2015, including those who were concurrently or subsequently diagnosed with AIDS. All HIV data are presented by the year of diagnosis, not the year of report.

III. Race/Ethnicity of STD and HIV/AIDS Cases

Race/ethnicity references to white residents and black residents represent persons who are white non-Hispanic and black non-Hispanic, respectively. All references to Hispanic/Latino for race/ethnicity represent persons of Hispanic/Latino heritage regardless of race.

IV. STD Case Reports and Analyses

All information on STD cases reflect year of report and all incidence calculations represent crude rates. The source of denominators for calculating rate trends was: Intercensal Estimates of the Resident Population by Sex and Age for Massachusetts: April 1, 2000 to July 1, 2010 (ST-EST00INT-02-25); Source: U.S. Census Bureau, Population Division; Release Date: October 2012 and Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties and Puerto Rico Commonwealth and Municipios: April 1, 2010 to July 1, 2016, Source: U.S. Census Bureau, Population Division; Release Date: June 2017. The source of denominators for calculating rate maps was the 2010 US Census. The distribution of STD cases in incidence rate calculations with unknown values for race/ethnicity has changed compared to previous reports. Cases with unknown values are now redistributed proportionally based on the distribution of cases with known values. Due to this change, STD incidence rates by race/ethnicity are slightly higher for all years than previously reported.

V. Cell suppression methodology:

Values less than five are suppressed for denominator populations less than 50,000 or for unknown values. Additional values may be suppressed to prevent back calculation.

HIV/AIDS, STD, and Viral Hepatitis Case Classifications (in the time period of the data in this report)

HIV INFECTION

Clinical description: HIV (human immunodeficiency virus) is a retrovirus with two serologically and geographically distinct species: HIV-1 and HIV-2. It is spread via person-to-person transmission through: sexual contact, the use of HIV-contaminated needles and syringes, vertical transmission from mother to infant, or the transfusion of contaminated blood or its components. HIV attacks the body's immune system, making the person more likely to get infections or infection-related cancers. These opportunistic infections or cancers take advantage of the weakened immune system and signal that the person has AIDS (acquired immunodeficiency syndrome), the advanced stage of HIV infection.

Case Classification
Confirmed: Positive HIV-1, Positive HIV-2, or Positive (Undifferentiated) HIV result from a differentiating immunoassay, Western Blot, IFA, or culture**;** Positive/Detected Qualitative HIV NAT (DNA or RNA); Quantitative HIV NAT (detectable viral load assay) or physician verified diagnosis.

Sexually transmitted diseases (STD)

Chlamydia trachomatis, Infection (Revised 6/09)

Clinical description: Infection with *Chlamydia trachomatis* may result in urethritis, epididymitis, cervicitis, acute salpingitis, or other syndromes when sexually transmitted; however, the infection is often asymptomatic among women. Perinatal infections may result in inclusion conjunctivitis and pneumonia among newborns. Other syndromes caused by *C. trachomatis* include lymphogranuloma venereum (see Lymphogranuloma Venereum) and trachoma.

Laboratory criteria for diagnosis
• Isolation of *C. trachomatis* by culture or
• Demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid

Case classification

Confirmed: a case that is laboratory confirmed

Gonorrhea (effective January 1, 2014)

Clinical description: A sexually transmitted infection commonly manifested by urethritis, cervicitis, proctitis, salpingitis, or pharyngitis. Infection may be asymptomatic.

Laboratory Criteria for Diagnosis
• Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male or an endocervical smear obtained from a female, or
• Isolation of typical gram-negative, oxidase-positive diplococci by culture (presumptive *Neisseria gonorrhoeae*) from a clinical specimen, or
• Demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or nucleic acid

Case Classification
Probable: demonstration of gram-negative intracellular diplococci in a urethral smear obtained from a male or an endocervical smear obtained from a female.
Confirmed: a person with laboratory isolation of typical gram-negative, oxidase-positive diplococci by culture (presumptive *Neisseria gonorrhoeae*) from a clinical specimen, or demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or detection of nucleic acid via nucleic acid amplification (e.g., PCR) or hybridization with a nucleic acid probe.

Syphilis (effective Jan 1, 2014)

Syphilis is a complex sexually transmitted infection that has a highly variable clinical course. Adherence to the following surveillance case definitions will facilitate understanding the epidemiology of this disease across the U.S.

Syphilis, primary

Clinical description: A stage of infection with *Treponema pallidum* characterized by one or more ulcerative lesions (e.g. chancre), which might differ considerably in clinical appearance.

Laboratory criteria for diagnosis:
Demonstration of *T. pallidum* in clinical specimens by darkfield microscopy, or by polymerase chain reaction (PCR) or equivalent direct molecular methods.

Case classification

Probable: a case that meets the clinical description of primary syphilis with a reactive serologic test (nontreponemal: Venereal Disease Research Laboratory [VDRL], rapid plasma reagin [RPR], or equivalent serologic methods; treponemal: fluorescent treponemal antibody absorbed [FTA-ABS], *T. pallidum* particle agglutination [TP-PA], enzyme immunoassay [EIA], chemiluminescence immunoassay [CIA], or equivalent serologic methods).[8]

Confirmed: a case that meets the clinical description of primary syphilis that is laboratory confirmed

[8] These treponemal tests supersede older testing technologies, including microhemagglutination assay for antibody to T. pallidum [MHA-TP].

Syphilis, secondary

Clinical description: A stage of infection caused by *T. pallidum* characterized by localized or diffuse mucocutaneous lesions (e.g., rash — such as non-pruritic macular, maculopapular, papular, or pustular lesions), often with generalized lymphadenopathy. Other symptoms can include mucous patches, condyloma lata, and alopecia. The primary ulcerative lesion may still be present. Because of the wide array of symptoms possibly indicating secondary syphilis, serologic tests for syphilis and a thorough sexual history and physical examination are crucial to determining if a case should be classified as secondary syphilis.

Laboratory criteria for diagnosis:
• Demonstration of *T. pallidum* in clinical specimens by darkfield microscopy, or by polymerase chain reaction (PCR) or equivalent direct molecular methods

Case classification

Probable: a case that meets the clinical description of secondary syphilis with a nontreponemal (VDRL, RPR, or equivalent serologic methods) titer ≥4 AND a reactive treponemal test (FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods.

Confirmed: a case that meets the clinical description of secondary syphilis (with at least one sign or symptom) that is laboratory confirmed.

Syphilis, early latent

Clinical description: A subcategory of latent syphilis (a stage of infection caused by *T. pallidum* in which organisms persist in the body of the infected person without causing symptoms or signs) when initial infection has occurred within the previous 12 months.

Case classification

Probable: A person with no clinical signs or symptoms of syphilis who has one of the following:

No past diagnosis of syphilis, AND a reactive nontreponemal test (e.g., VDRL, RPR, or equivalent serologic methods), AND a reactive treponemal test (e.g., FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods),

OR

A current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer.

AND

Evidence of having acquired the infection within the previous 12 months based on one or more of the following criteria:

• Documented seroconversion or fourfold or greater increase in titer of a nontreponemal test during the previous 12 months
• Documented seroconversion of a treponemal test during the previous 12 months
• A history of symptoms consistent with primary or secondary syphilis during the previous 12 months
• A history of sexual exposure to a partner within the previous 12 months who had primary, secondary, or early latent syphilis (documented independently as duration < 12 months)
• Only sexual contact was within the last 12 months (sexual debut)

There is no confirmed case classification for early latent syphilis.

Viral Hepatitis

Hepatitis is inflammation of the liver. It can impair vital liver functions such as processing nutrients, filtering the blood and fighting infection. Viral hepatitis is inflammation of the liver caused by infection with a virus. In Massachusetts, the most common types of viral hepatitis are hepatitis A, hepatitis B and hepatitis C. Hepatitis can also result from heavy alcohol use, toxins, some medications, and certain medical conditions.

Chronic HBV

Confirmed:

IgM antibodies to hepatitis B core antigen (IgM anti-HBc) negative

AND

A positive result on one of the following tests: hepatitis B surface antigen (HBsAg), hepatitis B e antigen (HBeAg), or nucleic acid test for hepatitis B virus DNA (including qualitative, quantitative and genotype testing),

OR

HBsAg positive or nucleic acid test for hepatitis B virus DNA (including qualitative, quantitative and genotype testing), or HBeAg positive two times at least 6 months apart (Any combination of these tests performed 6 months apart is acceptable.)

Probable:
A case with a single HBsAg positive or HBV DNA positive (including qualitative, quantitative and genotype testing), or HBeAg positive lab result when no IgM anti-HBc results are available

Acute HBV infection
Clinical Presentation: An acute illness with a discrete onset of symptoms consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain) and either a) jaundice or b) elevated serum alanine aminotransferase levels > 100 IU/L

Confirmed:
Clinically compatible case* not known to have chronic hepatitis B and

HBsAg positive

AND

IgM antibody to hepatitis B core antigen (IgM anti– HBc) positive, if done *

A documented negative hepatitis B surface antigen (HBsAg) laboratory test result within 6 months prior to a positive test (either HBsAg, Hepatitis B "e" antigen (HBeAg), or hepatitis B virus nucleic acid testing (HBV NAT) including genotype) result does NOT require an acute clinical presentation to meet the surveillance case definition.

Suspect:
Positive IgM antibody to hepatitis B core antigen (IgM anti-HBc) that does not meet the clinical definition

Note that the year into which a case is categorized is based upon the case's "Event Date", which is assigned by the following case characteristics, in decreasing order of specificity, dependent on availability of information: symptom onset date, specimen collection date, diagnosis date, or case report date

Past or Present HCV Infection Newly Reported to MDPH

Confirmed:
One or more of the following criteria (except among persons less than 18 months of age, for whom only criteria 3 would meet the case classification criteria):

Antibodies to hepatitis C virus (anti-HCV) screening-test-positive with a signal to cut-off ratio predictive of a true positive as determined for the particular assay as defined by CDC

OR

Hepatitis C Virus Recombinant Immunoblot Assay (HCV RIBA) positive

OR

Nucleic Acid Test (NAT) for HCV RNA positive (including qualitative, quantitative, or genotype)

Probable:

Rapid HCV antibody positive test

OR

Anti-HCV screening-test-positive that has not been verified by a more specific assay or has unknown signal to cut-off ratio (regardless of ALT results and acute hepatitis C status)

Acute HCV Infection

Confirmed:
Clinically compatible presentation* not known to have chronic HCV with 1 or more of the following:

Anti-HCV screening-test-positive with a signal to cut-off ratio predictive of a true positive as determined for the particular assay as defined by CDC

OR

HCV RIBA positive

OR

NAT for HCV RNA positive (including qualitative, quantitative, or genotype)

AND

if done meets the following two criteria†:

IgM anti-HAV negative AND
IgM anti-HBV negative

* - A documented negative HCV antibody laboratory result followed within 6 months by a positive test result (as described above) does NOT require an acute clinical presentation to meet the confirmed case definition

† - From 2007-2013, cases meeting the acute case definition but missing a negative HAV & HBV result were classified as *Suspect*. The case definition change in 2013 eliminated this requirement.

Suspect:

A documented negative HCV antibody laboratory test result followed within 6-12 months by a positive test result (as described above) does NOT require an acute clinical presentation to meet the suspect case definition.

Low level viremia (<100,000 IU/mL) not known to have chronic HCV

Note that the year into which a case is categorized is based upon the case's "Event Date", which is assigned by the following case characteristics, in decreasing order of specificity, dependent on availability of information: symptom onset date, specimen collection date, diagnosis date, or case report date.

HIV/AIDS, STD and Viral Hepatitis Program Staff Contact Information

Topic	Contact	E-Mail	Phone
Division of STD Prevention & HIV/AIDS Surveillance, and Ratelle STD/HIV Prevention Training Center			
Policy Development and Administration	Kathleen Roosevelt (Director, STD Prevention Division)	Kathleen.roosevelt@state.ma.us	617-983-6941
Sylvie Ratelle STD/HIV Prevention Training Center	Katherine Hsu (Medical Director) Janine Dyer (Deputy Director)	Katherine.Hsu@state.ma.us Janine.Dyer@state.ma.us	617-983-6948 617-983-6964
STD/HIV/AIDS Surveillance and Epidemiology	Betsey John (Director, HIV/AIDS and STD Surveillance)	Betsey.John@state.ma.us	617-983-6570
STD Clinical Services	Katherine Hsu (Medical Director) Barbara Coughlin (Public Health Nurse)	Katherine.Hsu@state.ma.us Barbara.Coughlin@state.ma.us	617-983-6948 413-586-7525
STD Disease Intervention Field Services and STD Partner Notification	David Goudreau (Field Operations Manager) Christopher Borger (Field Operations Manager)	David.Goudreau@state.ma.us Chris.Borger@state.ma.us	617-983-6835 617-983-6930
STD Health Education, Training, and Prevention	Brenda Hernandez (Special Projects Coordinator)	Brenda.Hernandez@state.ma.us	617-983-6943
Office of HIV/AIDS			
HIV/AIDS Resource Allocation, Policy, and Programs	Dawn Fukuda (Director, Office of HIV/AIDS)	Dawn.Fukuda@state.ma.us	617-624-5303
Health Promotion and Disease Prevention Services	Linda Goldman, (Director of Health Promotion and Disease Prevention)	Linda.Goldman@state.ma.us	617-624-5347
Behavioral Health and Community Engagement	Barry Callis (Director of Behavioral Health and Infectious Disease Prevention	Barry.Callis@state.ma.us	617-624-5316
Viral Hepatitis Program			
Viral Hepatitis Surveillance and Epidemiology	Shauna Onofrey (Viral Hepatitis Surveillance Coordinator) Susan Soliva (Epidemiologist)	Shauna.Onofrey@state.ma.us Susan.Soliva@state.ma.us	617-983-6776 617-983-6883

HIV/AIDS, STD, and Viral Hepatitis Resources

Training

Professional training to community based organizations, local public health departments, and medical providers can be requested and is free of charge.

Type of Training	Contact Information and Website
STD Education, STD Partner Notification, and STD Reporting	617-983-6940 www.mass.gov/dph/cdc/std
HIV/AIDS Reporting and Surveillance Projects	617-983-6560 www.mass.gov/dph/cdc/aids
HIV/AIDS Provider Trainings	617-624-5338 www.mass.gov/dph/aids
Viral Hepatitis Education	617-983-6800 http://www.mass.gov/eohhs/gov/departments/dph/programs/id/epidemiology/hepatitis/hepatitis-c/viral-hepatitis-educational-materials.html
STD Diagnosis, Treatment, and Management	617-983-6945 www.RatellePTC.org

Material and Clinical Toolkits

Health education materials and clinical toolkits can be requested free of charge.

Type of Material	Contact Information and Website
STD, HIV, Viral Hepatitis Fact Sheets	617-983-6940 http://www.mass.gov/eohhs/gov/departments/dph/programs/id/epidemiology/factsheets.html#std
HIV/AIDS Reporting for Health Care Providers Brochure	617-983-6560 http://www.mass.gov/eohhs/gov/departments/dph/programs/id/hiv-aids/reporting/
STD, and HIV Posters and Brochures	617-983-6800 https://massclearinghouse.ehs.state.ma.us/
STD Diagnosis, Treatment, and Management Toolkits	617-983-9645 www.RatellePTC.org

MDPH and MDPH Funded Websites

Division of STD Prevention	www.mass.gov/dph/cdc/std
HIV/AIDS Bureau	www.mass.gov/dph/aids
HIV/AIDS Surveillance	www.mass.gov/dph/cdc/aids
Viral Hepatitis Program	www.mass.gov/hepc
Sylvie Ratelle STD/HIV Prevention Training Center	www.RatellePTC.org

National Websites

Center for Disease Control and Prevention	www.cdc.gov
Division of STD Prevention	www.cdc.gov/std
Division of HIV/AIDS Prevention	www.cdc.gov/hiv
Division of Viral Hepatitis	www.cdc.gov/hepatitis
National Network of STD/HIV Prevention Training Centers	www.nnptc.org
CDC funded viral hepatitis online training	http://depts.washington.edu/hepstudy/